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COLMAN'S RURAL WORLD.

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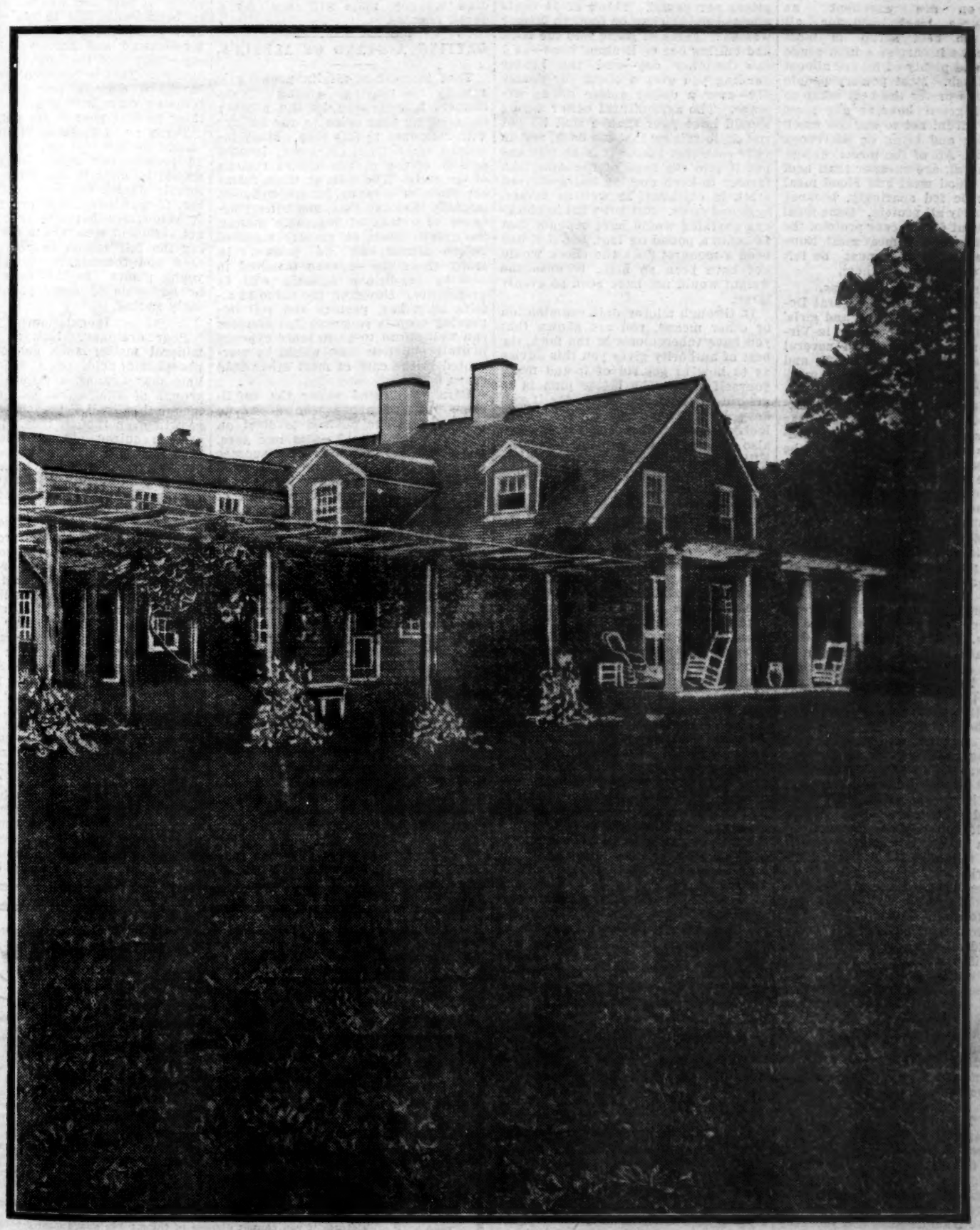
OLDEST AGRICULTURAL AND LIVE STOCK JOURNAL IN THE MISSISSIPPI VALLEY

Sixty-Seventh Year. ST. LOUIS, MO., MAY 14, 1914. Volume LXVII. No. 20.



IN THE POULTRY YARD

MAKING THE FARM POULTRY PAY.

(Twentieth Century Farmer.)

The farmer in this day, in many instances, prefers to buy a good brand of protein food, for there is no doubt but that hens lay better and chicks and ducks thrive better and grow better if fed some form of animal food, and to leave the chopping or cooking of this to the household usually results in limited supplies; so it pays to buy it. Simply cracked corn and some beef scraps each day will, with the grass, bring on the range or penned chick and duck into a growth that often astonishes one. While the different meals named variously as meat meal, meat and bone meal, beef meal and so on are excellent as mixers in a mash, yet for all purposes the beef scrap is most dependable, as it carries a high grade of protein and plenty of fat and almost nothing of ash. Most poultry people of experience prefer the beef scrap to the fresh cut green bone, as one must be so very careul not to use too much of the latter and bring on diarrhoea in the flock. All of the meals, except the blood meal, are cheaper than beef scrap, but blood meal and blood meal flour must be fed sparingly, because both are nearly all protein. Bone meal contains about 60 per cent protein, the rest fat. Many prefer meat meal. None of the meals or scrap must be left where the damp reaches them.

Children Showing Chickens.

Two years ago the Agricultural Department started some boys' and girls' poultry clubs in three counties in Virginia. For study they read several bulletins issued for their benefit, and wrote compositions on poultry management. There were 11 clubs, with a membership of something like 200 children. Each member of the clubs was obliged to secure a setting of standard-bred eggs and show what could be done by each in raising the chicks. They were expected to learn how to care for poultry, how to take care of sitting hens, how to grade eggs, etc. Their enthusiasm for the work proved greater than that of older people. At the Virginia State Fair last fall these boys and girls entered 150 of their standard-bred fowls.

About Squabs.

An expert in squab raising advises the beginner to buy squabs instead of adult birds. The reason given is that the beginner is liable to make mistakes, and if his mistakes bring sickness on his breeders, which are valuable paired stock, his money loss is liable to discourage him in the beginning. On the contrary, if he begins with squabs from strong, healthy stock, by the time they are grown he has learned their needs, and though he lose a few, the loss is little to what it might be had he invested in the older birds. Another thing, if you buy squabs you can keep them in and about their home, but often the older birds, especially Homers, will hunt every egress to get out and be away to their old home. Squabs take lots of food. All day long they like to stuff. Never expect them to drink from their bathing pans. Give pigeons, adult or squab, their drinking water in fountains, something they can merely get their bills in. The bathing pans need only be put in once or twice a day, then taken away. Sand is the best material for their floor, and with this on it the floor needs cleaning but once or twice a week.

Equal to Turkeys.

The farmer can thank the agricultural press for his increase of profit in poultry of all kinds, but especially chickens. For years and years the editors of farm papers have kept hammering away at the farmer to drop his mongrel flock and put in standard bred, to increase his poultry output, to feed and house it as it should be housed and fed, to give it care, and keep it free from disease, and inbreeding. It has patiently kept before the farmer the records of pure-bred stock in laying contests or individual cases, and the farmer finally began to notice and think, and little by little, here and there only at first, increase his flocks, and look up the standard bred, and guess that maybe poultry keeping was worth while, although in some cases they would agree that with the increase of poultry prices were bound to fall. Instead, as the output increases the price increases, it seems; at least it gets no lower. This spring chickens on the farms are bringing turkey prices per pound. Think of 14 cents a pound for chicken on foot, ye farmer woman? Think of going into the flock and culling out 60 Brahma hens—as I saw the other day—and the huxter handing you over a check for nearly $70—over a dollar apiece on an average. The agricultural editor surely should have your thanks that he put you on to raising that big flock, and in your case that kind. It is he who has put it into the head of the American farmer to keep nothing but pedigreed stock in chickens, as well as horses, hogs and cows. Not but what in chickens anything would have brought that 14 cents a pound on foot, but if it had been a mongrel flock the check would not have been so high, because the weight would not have been so evenly large.

If, through microscopic examination or other means, you are shown that you have tuberculosis in the flock, the best of authority gives you this advice as to how to get rid of it and make yourself safe. The better plan is to get rid of the whole flock, for if you keep the well ones it means a constant lookout that it does not appear, and also constant care and disinfection. Kill and burn all showing traces of the disease; the well and hearty ones may be used as meat, as these are not as yet diseased.

HATCHING GOSLINGS.

Geese begin laying early, but the very early eggs are not usually set, since the gosling needs warmth, and if hatched in a cold, wet season, is hard to carry through the weeks until sunshine and range come. The fresher eggs of any kind are when set, the better, but turkey, hen and goose eggs can be held three weeks. We prefer to set no duck eggs that are older than 10 days, and the sooner after laying, the better, says Wallace's Farmer.

Do not put many goose eggs under a hen. In cold weather, and early spring, five is plenty. If the old birds have been well cared for, the eggs are probably all fertile, and five goslings will soon take an old hen off her feet, to say nothing of the possibility of the eggs being too large to be comfortably covered by the hen during the four weeks of incubation in uncertain weather.

Cover the hen that is to hatch goslings, and after the hatch is completed, uncover her, and introduce her to her offspring yourself. We have had hens so frightened at the result of their four weeks' work that they absolutely refused to own the goslings; others will try to kill them. A hen that will hatch and brood goslings well is a treasure, and should be kept. It is an advantage to dip the eggs in warm water every day for the last five days of incubation. Goose eggs have stout shells, and the eggs require moisture to hatch well. If the goslings are slow in hatching after the shell is pipped, the eggs may be dipped, but not until the little creatures have had a day to do the work themselves. We have had a goose egg pipped for 36 hours before the gosling finally emerged. If a pipped egg is dipped, care must be taken to prevent the entrance of the water. We have known breeders to take an unpipped egg, and putting it in a ladle, dip it quickly in and out of water almost at the boiling point. If the hen is uneasy at hatching time, take the goslings out until the hatch is over, but keep them warm. If she seems to be careful and not likely to crush them, leave them in the nest.

BREEDING DUCKS.

Breeding ducks should be matured, and it is generally agreed that yearling females mated to a 2-year-old drake give better results, although a yearling male with 2-year-old females has given good results. The small varieties like the Indian Runner may be mated somewhat earlier than this, as they mature somewhat quicker than the heavy breeds. One male to five to seven females is about the right mating with the Pekins, while the Indian Runner male will care for a dozen females.

GETTING A STAND OF ALFALFA.

That interest in alfalfa growing is rapidly increasing among Texas farmers is evidenced by the number of inquiries that come to the college with reference to this crop. Many inquiries come from farmers located outside of the proven alfalfa regions of the state. The soils on these farms are often of a sandy nature, deficient in plant food and lime, and thirsty because of a lack of vegetable matter. Such soils must be greatly modified before alfalfa can be grown. In many cases the expense involved in making conditions suitable will be prohibitive. However, the value of alfalfa as a hay, pasture and soil improving crop is so great that farmers can well afford to go to more expense in its production than would be warranted in the case of most other field crops.

Farmers located under the conditions outlined above who desire to grow alfalfa are advised to start on a small scale, one half to one acre, and determine first with what success the crop can be grown. This will avoid many rather heavy losses that are often experienced as a result of seeding a large area to alfalfa without knowing first, if its profitable growth is possible, and second, what are the essential factors in the soil treatment and preparation. In making this test the following method is recommended:

During the early winter months, preferably January, apply well rotted barnyard manure at the rate of ten to twelve tons per acre. Broadcast plow and harrow down to a good seed bed. From this time until spring keep the surface pulverized by running a harrow over it after rains. When the soil has become warm in the spring plant it to cowpeas. The cowpeas should be planted in drills and cultivated to conserve the moisture and also to rid the soil of grasses and weeds that interfere with alfalfa growing. The cowpeas can be harvested for hay when the first pods have turned yellow. After harvesting the cowpeas broadcast plow the land and apply slaked lime at the rate of 1500 pounds per acre. Work the lime into the soil by harrowing it down into a good seed bed. The soil should than be left undisturbed until a short while before the alfalfa is seeded, with possibly the exception of an occasional harrowing following rains to conserve moisture. This allows the seed bed to become somewhat compact before planting—an ideal condition for alfalfa.

The next essential will be to inoculate the soil, or in other words, to supply the germs that produce the nodules on the roots of alfalfa, thus enabling the plants to secure nitrogen from the air. This should be done a few days before planting and is best done by securing from a field that is producing alfalfa successfully soil enough to apply to your test plot at the rate of from 250 to 300 pounds per acre. This soil should not be allowed to dry out before being applied and as light has a tendency to kill the germs it should be harrowed into the soil immediately after being applied. If your soil was naturally poor to begin with, 250 to 300 pounds of acid phosphate per acre should be broadcasted and harrowed in at the same time that the inoculation soil is applied. This is required because the barnyard manure previously added contains very little phosphoric acid—three to four pounds per ton.

Texas or Oklahoma grown seed should be sown at the rate of about 20 pounds per acre. This seeding should be done in the early fall, preferably during the month of September, if moisture conditions are good. It sometimes happens that there is not sufficient moisture in the soil during the fall season to germinate the seed and thoroughly establish the young plants. In this case it would be advisable to defer planting until early spring.

Inoculation.

Poor drainage, lack of sufficient mineral matter such as potash and phosphoric acid, or a deficiency of lime may cause a failure in the growth of alfalfa, but lack of proper inoculation will prevent a normal growth even though the soil have all other requirements. If your alfalfa field is improperly inoculated, in order to get satisfactory inoculation it will in all probability be necessary to plow up the alfalfa before adding the inoculating material.

About a week before reseeding, secure from a field that is growing alfalfa successfully, enough soil to apply at the rate of 250 to 300 pounds to the acre. The soil should be taken up and kept in a moist condition until it has been applied. It should be broadcasted uniformly over the surface of the field and immediately harrowed in, as sunlight has a tendency to kill the germs.

If you find it impossible to secure the alfalfa soil you can use prepared alfalfa cultures. Remember, however, that these cultures must be prepared especially for alfalfa and not for legumes in general, as the germ that grows on the roots of alfalfa is quite different from that which grows on the roots of cowpeas, soy beans and clover. In securing the prepared culture, be sure and specify "alfalfa culture." Inoculated soil is to be preferred when it can be obtained.—J. O. Morgan, A. and M. College of Texas.

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CREAM of the DAIRY NEWS

FIGHTING TUBERCULOSIS IN A HERD.

I bought our first Shorthorns in 1862, since which time we have bred them to a more or less extent. Our herd had grown to somewhat large proportions about twenty-five years ago, and tuberculosis was unknown to us, but on making a sale of some six young bulls for intended export to the United States the tuberculin test for the first time in our herd was applied to these six bulls, with the result that every one of them responded to the test. We naturally received a severe shock, and at once applied the test to our entire herd, when all responded except one bull and one cow, with the result that the entire herd, apart from the bull and the cow, which did not react, was slaughtered.

Our premises were carefully disinfected and the rebuilding of the herd was begun. We bought carefully and practiced testing twice a year and again got our herd up to large proportions. We had no reactions whatever and felt that we had completely conquered the disease, but it was once more introduced into our herd through the purchase in Chicago of the great cow Missie 153d, for which we paid $6,000 to Mr. Marr. She successfully passed the test in Scotland before being exported to Chicago and on buying her we took her to our farm with all confidence. In December she had a heifer calf, and in the spring they, with the whole herd, were tested, without one single reaction, and they were tested regularly with the herd each succeeding six months, says Breeders' Gazette.

In eighteen months after the arrival of Missie 153d in the herd reactions began to appear around the boxstall in which she stood, with increasing numbers as time went on, but neither Missie 153d nor her heifer calf ever responded to the test, showing conclusively that the mother had tuberculosis in such an advanced stage that the tuberculin was not operative, and this we have not wondered at, as our experience has taught us that the greatest reactions are in the incipient stages of the disease, and that in an advanced condition of the disease there are no reactions; but it is the case of the heifer calf that we have never understood and can only conclude that she was diseased when born, which we understand is possible but very remote, or the disease developed in her so rapidly that she did not react in our first test after she was born, when she was only five or six months old. In any case, neither mother nor calf ever responded to the test but remained in the pink of condition and were the pictures of our herd, never showing any signs of breakdown until less than a year before they died, and both died of tuberculosis the same year, when the heifer was four years old. This was pretty hard on a heifer that had been a champion in the show ring at our leading shows until her actual breakdown occurred, and was a most serious financial experience to us in the buying of a $6,000 cow to ruin our herd.

On the discovery of the disease the second time we separated every reacting animal from what we called the sound herd and maintained two separate herds for years, raising the calves of the reactors in separate premises on nurse cows, and were successful in raising calves that did not react. Four years ago we decided to abandon even this practice, and found an entirely new herd. We ceased testing the old breeding herd and began the practice of removing to entirely separate and remote premises every calf as soon as born, to be raised on nurse cows, and so far as we can judge, this has been eminently successful. We have not sold a heifer calf for three years. We have not had one reaction and these three crops of heifer calves constitute the foundation of our future breeding herd. Our experience has been one of serious disappointments, as we purchased none but the best of Shorthorn blood and paid high prices for our breeding stock, but our experience should be of value to breeders and particularly to beginners who wish to establish new herds. Financial returns for all we have done can never come to us. Our only compensation can be the feeling that we have conquered the most insidious of diseases pervading our bovine herds. We shall feel at liberty, of course, to introduce new blood by the purchase of bulls from outside as necessity occurs, but we do not regard this as any danger, so long as the bulls are kept well separated from the rest of the herd.

MOSQUITO PREVENTION.

A state like Minnesota, with many small ponds, lakes, and swamps, is sure to be more or less afflicted with the mosquito pest each season. Many of our "wild" mosquitoes deposited their eggs last autumn on the dead leaves and grass where water will collect this spring. So we may soon expect to find "wrigglers" in such places, although these collections of water may be only temporary. This early generation of mosquitoes will remain with us all summer. Other "wild" mosquitoes breed in our ponds and swamps and along quiet, shallow margins of lakes and rivers, during the entire summer.

We may also speak of "domestic" mosquitoes, for several species prefer to breed in our rain barrels, clogged up roof-drains, broken bottles, dishes, and old tin cans on the rubbish heap which have collected rain water.

Mosquitoes can breed only in water, notwithstanding the many popular statements to the contrary. The whole structure of the young mosquito fits it for a life only in water. So in combating mosquitoes, the obvious remedy is to remove the breeding places. No pool or collection of water is too small or too filthy to serve such a purpose. The only requisite is that it be stagnant and that it remain permanent long enough for the mosquito "wrigglers" to reach full growth. Care must be used therefore in searching for breeding places so as not to overlook some of the smaller ones.

Draining of marshy lands, or sometimes filling of such places, dredging of the margins of lakes so that there are no weedy shallows left, and the introduction of small fish are the best remedies to give permanent relief. A film of kerosene or light fuel oil placed on the surface of water prevents the wrigglers from breathing and kills them. About one ounce of oil will cover a surface area of 15 square feet. It must be renewed once in two or three weeks.

For "domestic" mosquitoes, clean up rubbish, place tight-fitting mosquito screens over the rain barrels and, if necessary, place oil on top of collections of water not otherwise removable.—C. W. Howard, Assistant Entomologist, University Farm, St. Paul.

DON'T SKIMP THE COWS.

The worth of cows for the season depends largely upon the condition they are in when they go out to pasture at the beginning of the year. In earlier days I used to wonder what was the reason my cows fluctuated so one season with another. When the surrounding conditions were quite the same during the summer months, I would find that some years my herd would do a great deal better than they would other seasons. And I could not for some time satisfy myself as to the cause of this marked variation. You know, when a thing affects your pocketbook, you after a while begin to do more than wonder about it; you put such brains as you have to work to find out what is wrong and then to devise ways and means for remedying the trouble, says Farmer's Guide.

And in the course of my investigations along this line, I came to the conclusion that it was when my cows were in the best possible physical condition at the time they went out to pasture that I realized the most from them during the working season; while on the contrary, if they were poor and weak in bodily vigor, my returns would be correspondingly curtailed.

It was worth something to me to have that point settled to my satisfaction; for then the way seemed to be pointed out for the next step. The why and the wherefore of this state of affairs as I reasoned it out is as follows: Every kind of an animal will try to make itself comfortable. Poor cows are not so. They are all the time gaunt and not exactly satisfied with themselves. Take a cow that is bearing a calf, as most of our cows are at this season of the year. There is a constant drain on the mother's body to meet the conditions of the growing offspring. Not only must the cow keep up her own bodily flesh, strength and vim; she must all the time keep pouring into the coming calf the material which will make bone, blood and muscle. If she does not get enough feed, and feed of the right kind to do this, both the mother and the offspring must suffer. Natural causes produce natural results. So the cow comes out of the ordeal in a run-down state that forbids that she should be able for a number of weeks to do as good work in the dairy as if she had been fed well and otherwise cared for as she should have been.

When a cow goes out to grass in this debilitated condition, the first thing she does is to build up her depleted body. Self-preservation is the first law of nature. So it naturally follows that the cow eats and drinks and does business largely for herself for some weeks. She will not give as good milk, nor so much of it, as if she had been fairly treated for the month or six weeks prior to calving.

Now, here is where I put two and two together. I said to myself: "From this time on, I will keep my cows up in the best shape I can the last end of winter. I will not let them get poor in flesh or run-down in bodily vigor." And I have tried to do this ever since, and the consequences is that there has not been this mystifying falling off some years in the proceeds from my dairy.

It takes a little more feed, especially ground feed, to do this than it does to pinch a cow through till grass comes. There is a temptation sometimes to think: "Well, if I can only get my cows through to pasture, I will be all right. I must skimp them down. Hay is short; ground feed is high in price. I will have to cut down my rations for the next few weeks."

It is the costliest thing a man can do. Economy in the feed and care given a herd of cows at this season of the year is economy that costs more than it comes to. Indeed, I very much doubt if any man ever saved anything by pinching his cows on feed. He always gets the worst of it. For nature will not brook any attenmpt at abuse.

Far better that a man should spend a few dollars more for hay or grain than to attempt to "get through" on short commons. His cows if kept up in good shape these coming weeks before pasture comes will then be in condition to go out and begin working, not for themselves alone, but for their masters. They will give more milk and it will be better milk, so that the returns will begin to come in right along.

Another point is well worth noticing here, and that is that if feed is short, we need to bear on a little harder with the care we give our cows. That is, we must groom them more regularly and do it with the greatest possible sympathy, so that the bodily comfort of the animals will be fully conserved. That many seem strange to some who never have studied into the matter as they might. Here is the theory, and it works out well in practice: The well-groomed cows gets more good out of the feed given her than the one that is left to get rough and shaggy and her hair all matted down over the pores of the skin. A clean body helps to maintain health, and a healthy cow is the one that is more profitable to her master. Elimination of waste matter goes on all the time, more or less hampered by the state of the bodily organs. The skin is one of the great organs for carrying off waste material from the body. Keep it clean and the cow feels better, eats less and gets more good than she would if not fed properly from the hay, grain and other food given her.

These things I have found out for myself and they are worth something to me. They will help any man who will make his own observations and act accordingly.

THE VICIOUS ROOSTER.

The male bird in the breeding pen should be watched to ascertain his disposition towards his mates. Some males are spiteful and drive the hens away from their food. Such males are practically useless as early breeders.

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Cattle

BREEDERS' BULLS.

Greatness is achieved by the breeder of pure-bred cattle in proportion to the number of breeders' bulls his herd produces. True, a more bubble reputation accrues when glistening stars in the showyard constellation are turned out, but if the greatest good to the greatest number be the gauge of merit, the herd which supplies the largest quota of herd-headers must be accorded pride of place, says the Breeder's Gazette. All great show bulls have not proved great getters. There is no fine-drawn distinction without a difference in this proposition. A breeder may turn out a lot of show bulls without ever giving to the world a great sire. On the other hand he may supply successful heads for many herds without ever breeding a single show bull. Champion of England, the bull which made the Sittyton herd the greatest of them all, was never a show bull himself and similar instances could be multiplied.

What is a breeders' bull? A bull good enough individually and in point of pedigree to be placed at the head of a herd of purebred cows with at least fair prospects of begetting cattle that will sell for prices beyond the average. Such bulls are more numerous than show bulls, therefore they must be more easily produced. It is evident then that it will pay better to essay the production of such bulls than to run a larger risk in the effort to turn out all-conquering winners.

I assume a difference between the breeders' bull and the show bull. About the latter there must be an air of quality and refinement that is not compatible with great ruggedness of frame and constitution that should characterize the former. In our modern Shorthorns a type is being favored by some breeders that differs somewhat from the ideal of the breed. To compete with other beef breeds in the great steer competitions, the effort has been to tuck in the shoulder-points, lower the shoulder-top and crest, round off the hook bones and fill up the twist—loss of scale, substance and weight invariably accompanying achievement of success along this line. In some of the other breeds too the show type may be said to differ from the ideal breeder's type.

In all lines of animal breeding the balance of size must be preserved unless deterioration is to be suffered. Big females are always necessary. It is held that the surest way to produce showyard excellence in farm animals is to have the size in the female and the quality in the male. How are we going to get the females of sufficient size unless we have weighty bulls to sire them? There is no bull on earth that is exactly suited in conformation to mate with all the cows in the herd. That being true, which is the wisest policy for the breeder to pursue—to turn out big burly rugged cattle, or to take chances on getting more misfits for the sake of producing a great winner occasionally? I contend that the former is by far the wiser course.

Individuality counts for as much in cattle breeding as it does in anything else. Let any breeder reach a point in his career where his herd has the reputation of producing big thick-fleshed cattle of rugged constitution and he will soon land very close to the top of the tree. In all classes of improved farm animals the natural tendency is toward loss of size if proper safeguards are not employed. Just at present the overwhelming popularity of baby beef of light weight may induce breeders to underestimate the importance of maintaining size and weight in their herds. But even granting the popularity of the yearling carcass there never was a 1,000-pound steer, quality being equal, that did not bring more money than a 900-pounder.

No one with the right idea wants big rough cattle of any sort—their day has passed never to return. On the other hand the avidity with which a big smooth cow is grabbed off at a sale suggests at least that quite a number of breeders are finding themselves a bit short of scale in their herds. Therefore the harvest is ripe for the man who produces big burly bulls of rugged constitution and correct breed type. Our greatest need is not for more show bulls of ultra-gentility and high finish, but for breeders' bulls with size, scale, substance, redundant vitality and as much quality and polish as is compatible with the maintenance of proper poundage. It is no easy trick to breed such bulls, but in the effort the discards will average up to a higher standard of utility than they will if the effort to produce the showyard type be continued as at present. We need more real big burly sound breeders' bulls, and if a concerted effort be made to produce them it will not be many years before we have a line of show bulls superior to that which is with us just now.

To insure the early maturity in our beef stocks which is now so essential to profit-making in cattle feeding, we must have the right kind of bulls. To secure them in any numbers we must first have them in our purebred herds. Hence it seems to me that our breeders should redouble their efforts toward the production of breeders' bulls with rugged constitutions and sound health.

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THE COW AT THE BIG SHOW.

Upon the cow depends more of civilized man's welfare than upon any other animal. Man needs the horse for his motive power, for his pleasure, for his care, protection and love, but its place can be taken by the mule or the motor.

Man needs the hog for its utility and economy as a wealth producer; the cat for its companionship; the dog for its domesticity; the hen for its helpfulness and all for their aid in the conservation of his resources or for his personal pleasure, but man has lived and can live without any of these.

With the cow it is different. Milk is the only universal human food without which mankind cannot exist and its supply in adequate quality and quantity affords one of the big economic problems of the day. Beef has ever been the food of the dominant races of mankind. From its fibre is builded that brain and brawn; that vim and energy; the acumen and initiative which has not only conquered the forces of the earth and air to man's use, but has won supremacy over the vegetarian races of his own kind. The leather of our shoes, our chairs, automobiles, mills and factories; the buttons on our clothes, the combs for our hair, glue for our furniture, hair for mortar and matresses; biscuits for our pets and fertilizer for our farms are but incidental side-lines of production by the cow who is the foster mother of half the human race.

When pride of accomplishment demands that man should display his treasures in a symmetrical arrangement for the world to see, what more natural than that one of his chiefest treasures should be given prominence and the cow placed upon a proper pedestal. The Panama-Pacific International Exposition not only provides for the cow so that she and her sons and daughters may win honors in competition, but it especially provides for the student so that every human being may learn something at her feet.

As this great Panama-Pacific Exposition is the celebration of cotemporary accomplishments, the cow and her family will be on exhibition during its entire period from February 20th to December 4th in order that she may show not only what has been done for her through man's knowledge and skill in following nature's laws, but she may help to solve many of the problems which now confront all who are interested in the human food supply.

There will be conducted a dairy demonstration in which a considerable number of grade dairy cows will participate under expert direction. This will in no sense be a competition between breeds, but will have for its object the determination of such questions as directly concern the farmer and dairyman and can be worked out during this period which corresponds closely with the lactation period of the cow. Questions which concern the feeding for quantity and length of lactation period, the sanitary handling of the cattle and of the milk for home manufacture, for factory and use as certified milk and for all other purposes, as well as the reduction of the bacterial count.

GENERAL LIVE STOCK SHORTAGE.

During the past decade, the North American ranges that formerly produced feeding cattle by tens of thousands, have been largely absorbed by settlement; and, of course, the price of meat, like every other commodity, is subject to the law of supply and demand. Today, the whole world is short of beef, and all authorities, agree, is likely to remain so for some considerable time. Even although farmers throughout the West, and particularly in Saskatchewan, are getting into stock just as quickly as they are able, the high price which must be paid for animals, owing to their general scarcity, is a very retarding circumstance. For instance, grade cows which only a few years ago fetched from $25 to $40, now cost from $75 to $100, and even as high as $125. In other words, one grade cow costs as much today as three did formerly. This means that to get into stock nowadays is quite costly as compared with the by no means remote past. On the other hand, the price and profit obtained today from the sale of a stockman's increase more than offsets the high outlay upon his initial herd. There is big money in the business for experienced men with a little capital. Never before was there such big money in any branch of Canadian agricultural effort.

MISSOURI CROP REPORT.

The following crop report was issued recently from the office of the secretary of the Missouri State Board of Agriculture. Reports from more than 600 Missouri farmers who are regular correspondents of the Missouri State Board of Agriculture are generally optimistic. Farm work of all kinds is well advanced. There has been some little complaint of lack of rainfall, but generally this was remedied during the latter days of April. At Columbia, the total rainfall for the month was 1.74 inches, as compared with 3.39 for April, 1913. The rainfall for the month just ending is practically 2 inches—1.96—less than normal. There was an accumulated deficiency of precipitation of 2.93 inches since January 1. The highest temperature for April was 86 on the 26th and the lowest, 24 on the 9th.

Wheat—The condition of wheat for the state is not only 2 points higher than one month ago, but the highest ever recorded in this office on May 1, being 101.8. The 10-year, May 1, average is 82.7. The lowest May 1 condition for this decade was 63.4, in 1912, and the highest 98, in 1913. Present wheat condition by sections is: Northeast, 101; northwest, 102; central, 103; southwest, 104; southeast, 99. Practically no abandoned acreage reported. It is estimated that only about one-half of one per cent of the crop seeded last fall will be plowed up. Of this practically all was put in for pasture.

Corn—The corn crop is going in good shape and in good time. It is estimated that 60 per cent of the corn land has been plowed. Soil condition is 96. Taking the state as a whole 20 per cent of the crop has been planted. Planting is fartherest advanced in the southwest section where 38 per cent of the crop is in the ground. The central and southeast sections each report 21 per cent of the crop planted. In the northeast section 12 per cent of the crop is reported planted, while but 8 per cent is reported from the northwest section. For a period of 10 years an average of 25 per cent of the corn crop has been planted by May 1. The earliest planting for this decade was in 1905, when 52 per cent of the crop was in by May 1, and the latest in 1912, when but 3.5 per cent of the planting had been completed by that date. A preliminary estimate of the 1914 corn acreage is estimated at 101 per cent as compared with last year's crop of 7,537,270 acres.

Oats—Most of the Missouri oat crop was seeded in good shape, but a few correspondents report poor condition of growing crop owing to hard rains and cool weather immediately following seeding. Practically the entire crop had been seeded by May 1. Indications are that the final estimate will show a considerable increase in acreage over the 1913 crop.

Other Crops—There seems to be a great diversity of opinion as to the condition of clover. It is generally agreed that much of the old crop was killed by the drouth of 1913. Many correspondents report the new crop as coming along nicely, while others incline to a different view. Unseasonable weather after seeding has undoubtedly caused the loss of some of the new clover. Taking the state as a whole the condition of clover is reported at 82. Reports on timothy are generally more favorable and indicate a condition of 89. Alfalfa condition is 92. During the month of April pastures did not make the growth hoped for, yet shortage of feed caused much stock to be turned on grass. Pasture condition for the state is 86. By sections it is: Northeast, 86; northwest, 90; central, 85; southwest, 82; southeast, 89. There is considerable complaint that many permanent pastures seem to have been injured by the drouth of last summer and many show an unusual growth of weeds. Of last year's hay crop it is estimated that only 8 per cent is now on farms. 91 per cent of the correspondents of the board report stock on grass.

Fruit—The outlook for a general fruit crop continues good, being reported at 82 for the state. There is a marked difference of opinion as to the outlook for peaches. However, the condition, taking the state as a whole, is reported at 67. By sections it is: Northeast, 86; northwest, 73; central, 72; southwest, 48; southeast, 54.

FEDERAL QUARANTINE AGAINST MAINE POTATOES.

A quarantine against Maine potatoes, effective August 1, 1914, has been declared by the United States Department of Agriculture on account of the prevalence of powdery scab in that state, particularly in Aroostook county. After August 1, no common or Irish potatoes can be moved out of Maine except under regulations which the Department of Agriculture will publish shortly. Powdery scab has been prevalent for some time among Maine potatoes, but hiterto the state authorities have been responsible for preventing the spread of the disease. With the enforcement of the new quarantine, the federal government will take charge of the work. There will be, it is said, no radical change in the existing restrictions.

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Horticulture

SPRAY! SPRAY! SPRAY!—IT WILL PAY.

The Missouri State Fruit Experiment Station at Mountain Grove, Mo., urges every fruitgrower to take steps to protect his fruit against loss from injurious insects and plant diseases. The proper spray applied at the proper time will prevent such losses but sprays improperly prepared or applied at the wrong time merely mean loss of time and money.

Apple.

Codling Worm—The spray to control this pest of every apple orchard can be combined to control also Curculio, scab, cedar rust, blotch, and leaf spot. Use lime sulphur solution (either commercial or "home-boiled") diluted at the rate of one gallon of stock to 40 gallons of water. To this add four pounds arsenate of lead paste or half this amount if dry or powdered arsenate of lead is used. Apply as soon as nearly all the petals have fallen and use good pressure. The aim should be to thoroughly drench the clusters of young apples, especially, and to fill the calyx end with the solution.

Peach and Other "Stone Fruits."

Curculio—For the first spray to control curculio apply the following just as the husks are shedding: Arsenate of lead (paste), four pounds, or if powdered arsenate of lead is used, take but two pounds. Water, 100 gallons. In a separate bucket slake four pounds of quicklime in about two gallons of water and after slaking has stopped strain into the lead arsenate solution and agitate thoroughly.

Currant and Gooseberry.

To control worms attacking foliage spray with powdered white hellebore at the rate of one ounce per gallon of water.

Grape.

To control grape berry worm and black rot spray with Bordeaux mixture, 4-4-50, to which arsenate of lead paste is added at the rate of two pounds per 50 gallons. This spray should be applied just before the flowers open, just after they close and repeated at intervals of two weeks. For small vineyards a simpler method is to tie the clusters, after pollination, in paper bags.

The first spray on either apple or stone fruits should be repeated in from a week to ten days to secure best results.

For advice as to how to arrange a complete spryaing schedule for the whole season or for detailed information regarding insect pests, plant diseases or other orchard troubles write to the Missouri State Fruit Experiment Station at Mountain Grove, Mo. They are willing to help you if you will allow them to do so. There are no fees charged by this station for advice or services.

LIGHTNING A PROLIFIC SOURCE OF FOREST FIRES.

Exhaustive inquiry has established the fact that lightning ranks next to railroads as a source of forest fires. Forest officers say that the increasing care with fire on the part of the railroads and the public generally tends to make lightning the largest single contributing cause.

This statement represents a change of view from that held less than a decade ago in this country, when forest journals gravely argued whether lightning caused forest fires, though it was known that trees were the objects most often struck. Trees are said to be oftenest struck simply because they are so numerous, and extending upward, they shorten the distance between the ground and the clouds; further, their branches in the air and roots well into the earth, invite electrical discharges.

While certain trees are said to invite lightning, and other to be immune from stroke, it seems to be a fact that any kind of tree will be struck, and the most numerous tree species in any locality is the one most likely to suffer.

Other things being equal, lightning seeks the tallest tree, or an isolated tree, or one on high ground. A deep-rooted tree is a better conductor than a shallow-rooted one, and a tree full of sap, or wet with rain, is of course a better conductor than a dry one.

Lightning sets fires by igniting the tree itself, particularly when it is dead, or partly decayed and punky, or by igniting the dry humus or duff at its base. The forest soil, when dried out, ignites readily, because it is made of partly decayed twigs and leaves, and it can hold a smouldering fire for a considerable period. It is probable that most of the lightning-set fires start in the duff.

In the mountains of southern California, Arizona and New Mexico there are likely to be each year a number of electrical disturbances known as "dry thunder storms." They come at the end of the long dry season, and being unaccompanied by rain are very likely to start many serious fires. For this reason the forest service has to keep its maximum fire fighting strength in those regions until the rains are fully established. In the plans and organization for fire fighting the service aims particularly to catch these unpreventable lightining-set fires at the time they start.

FRUIT CROP PROSPECTS MAY FIRST, 1914.

Missouri's fruit crop will be worth a lot of money this year if it suffers no further serious damage. As compared to a "full crop," the prospect now stands as follows: Apples, 92 per cent; peaches, 31 per cent; strawberries, 70 per cent.

North Missouri — Loess District (all counties adjoining the Missouri river upstream from Boone county, central Missouri): Apples, 90 per cent; peaches, 75 per cent; strawberries, 90 per cent. Shortage is due to late winter freezing of peaches, and effect of last year's drouth on strawberries. Apples short in same orchards due to excessively heavy crop last year. Remainder of north and central Missouri: Apples, 90 per cent; peaches, 70 per cent; strawberries, 90 per cent. Shortage due to same cause as in western river Loess district. South Missouri, "Ozark District:" Apples, 95 per cent; peaches, 25 per cent; strawberries, 70 per cent.

Only in south Missouri has serious damage occurred to the fruit crop. Peaches were the sufferers. On April 8 and 9 the severe freeze occurred in most of the peach belt, and only in orchards which have been well cared for, and situated for good air drainage, is found more than a half crop. Though the crop will be short, it should be profitable, owing to the higher prices for peaches.

Summary of prospect for actual production in car lots follows:

Production in car lots (30,000 lbs. to a car):

All counties on Missouri River upstream from Boone County (Loess District): Apples, 5,600; peaches, 175; strawberries, 60. Central and north Missouri: Apples, 965; peaches, 75; strawberries, 11. South Missouri: Apples, 3,100; peaches, 400; strawberries, 520. Total for state: Apples, 9,665; peaches, 650; strawberries, 591. Production sprayed: Apples, 2,800; peaches, 120.

The prospect in car lot production for each county of each kind of fruit and how much of it is sprayed fruit, and the prospective production of each of the 16,705 growers of the State, including the varieties and character of fruit raised, etc., may be obtained by writing to this office.

JOHN BLAND, Secretary,
Missouri State Board of Horticulture.

ORCHARD AND GARDEN NOTES.

Keep the cultivator busy in both garden and orchard. It pays.

Gladioli and dahlias may be set out the latter part of the month.

Plan several sowings of peas, beans, spinach, corn, radish, and lettuce.

To get a succession of gladioli, make several plantings of the bulbs.

Do not prune spring-flowering shrubs until after they have flowered.

Asparagus is growing nicely. Are you enjoying cuttings from your own bed? It is not too late to set out a bed for future years.

A planting of sweet corn should be made as soon as all danger from frost is over.

Alderman or Nott's Excelsior peas may be sown any time before the middle of May.

Don't sow seed on poorly prepared land. It means more work and often poor returns.

Hardwood ashes are fine to put on the fruit plants and may also be used in the garden.

Swiss chard, or leaf beet, makes excellent greens and will last much later in the season than spinach.

Treat all potatoes before planting with corrosive sublimate or formalin for scab. Then plant on clean land.

There is still time to do some top-working and to set out some ornamental plants and shrubs about the house.

Cut asparagus just below the surface of the ground rather than break it. Breaking is apt to injure the crowns.

Harden off all plants before setting in the open ground. This is done by reducing the amount of water given and giving more air to the plant. It is simply a hardening of the tissues to withstand field conditions better.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

America's Telephones Lead the World
Service Best—Cost Lowest

from London Daily Mail

"Why is it that Government ownership and management of the telephones is practically always a failure?

Why is it that throughout the length and breadth of Great Britain and the Continent hardly a single efficient long-distance service is to be found? Why is it that [illegible]

from "Electrical Industries" (London)

THERE is a certain amount of satisfaction in the fact that Mr. Winston Churchill got so angry over the freaks of the telephone the other day that he flung his receiver on the floor. As a member of the Government which purchased the telephone system, he deserves all the torture that Post Office working can inflict. But his rage, [illegible]

From "Le Petit Phare de Nantes," Paris

"But today I found I had to talk with Saint Malo, and, wishing to be put through quickly, I had my name inscribed on the waiting list first thing in the morning; the operator told me—though very amiably, I must confess—that I would have to wait thirteen hours and ten minutes (you are reading it right) in order to be put through."

Herr Habeland, Deputy, in the Reichstag

"The average time required to get a connection with Berlin is now 1½ hours. Our business life and trade suffer considerably on account of this lack of telephone facilities, which exists not only between Dusseldorf and Berlin and between Berlin and the West, but also between other towns, such as Strassburg-Antwerp, etc."

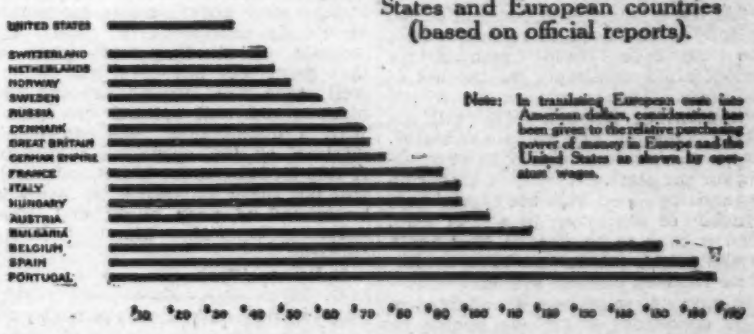
Dr. R. Luther, in the Dresdner Anzeiger

"In the year 1913, 36 years after the discovery of the electro-magnetic telephone, in the age of the beginning of wireless telegraphy, one of the largest cities of Germany, Dresden, with half a million inhabitants, is without adequate telephone facilities."

Herr Wendel, in The German Diet

"I refer here to Freiberg. There the entire telephone service is interrupted at 9 o'clock p. m. Five minutes after 9 o'clock it is impossible to obtain a telephone connection."

Real Average Cost of Telephone Service
per year to a subscriber in the United States and European countries (based on official reports).



Note: In translating European costs into American dollars, consideration has been given to the relative purchasing power of money in Europe and the United States as shown by operatives' wages.

These are the reasons why there are twelve times as many telephones for each hundred persons in the United States as in Europe.

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GOOD ROADS.

"Sixty per cent of the convicts can be trusted in some way," stated E. Stagg Whitin, of the National Committee on Prison Labor, before the Senate Committee on Interstate Commerce at a recent hearing on the Hughes bill to limit interstate commerce in convict-made goods. Dr. Whitin appeared in favor of the bill, the passage of which would go far to break down the contract system of prison labor.

The contention was made that this would cause embarrassment to some of the states in that it would be difficult to find employment for their convicts. To refuse this contention, Dr. Whitin outlined the constructive scheme for the development of the prison industries of Wisconsin, which he had worked out for the Governor and the Board of Public Affairs.

"The state of Wisconsin has an asset in its lands, but it cannot sell them at profit because of the stumps. The first proposition is to have the 60 per cent of the convicts who can be trusted away from the prison out on those lands to take out the stumps," he said. "Then the stumps must be brought down to some central point near the railroad. Those convicts who can be trusted furthest away must build a road embracing all the state lands, and quarrying the stone for the road, while the road will also add to the value of the lands. A pulp mill and saw mill should be located at the central station where the waste wood can be turned into pulp and the timber sawn. From the mills the pulp and timber should be shipped to Waupun prison.

"At the prison the 40 per cent of the prisoners who need to remain within the stockade could manufacture school desks and paper for the use of the state. There are probably 25 life prisoners at Waupun who will not likely come out and go into industry. These men could be employed at printing for the state. When you gather up your waste paper from the capital and, instead of selling it to a junk man, send it back to be worked over again at the prison plank, you have a complete rund-up of your system.

"Constructive schemes, adapted to local conditions and needs, should be worked out in each of the states," Dr. Whitin concluded, "and then it will be possible to place all the prison industries on an efficient basis, to pay the prisoner a fare wage for his work, and to do away with unfair competition with free labor.

ARKANSAS NOTES.

Editor Rural World: I thought I would write a few items today. Had quite a freeze on the 6th and 7th. I was afraid my garden was injured, but it was all right, but I think there will be only half a crop of peaches, but such a crop of apples. I never saw the trees so full of blooms before. The oats are up nicely, also alfalfa, that has been sowed only a week, it came up so much sooner than we expected. The people claim that alfalfa won't do any good here in the mountains, but we sowed 100 pounds, regardless of what they say. We are going to give it a fair trial to find out for ourselves. Well, the forest timber is getting green, which reminds us that spring is here. Planting corn is the order of the day, and will be for quite a while. Wishing the editor a long and happy life. SARAH L. SPEARS.

Redstar.

WHEN TO APPLY LIME.

"The best time to apply lime," says M. A. Bachtell of the College of Agriculture, Ohio State University, "is during the preparation of the seedbed for corn. The cultivation of this crop mixes the lime with the upper soil. By the time clover is sown on that soil, the lime has changed it from a sour to a sweet condition. The time for applying lime, however, admits of wide variation. Usually a busy spring compels the farmer to spend his time in getting ready for the season's planting. If liming is neglected, it can be done at the time of the preparation of the seedbed for wheat. Lime should not be applied to the surface and immediately plowed under as this tends to place it too far from the surface where it is needed. Neither should the caustic forms (hydrated lime and quicklime) be applied in connection with manure and fertilizers. It is better to plow the manure under and put the lime on top of the soil. In case the manure is desired for top-dressing, the lime should be worked into the soil at least two weeks prior to application of the manure. Likewise it is well to apply the lime some time previous to commercial fertilizers."

SPRING PRUNING.

A great many questions have come to the Experiment Station lately relative to how late apple, peach, and pear trees could be pruned in the spring. The pruning can be done with entire success at any time during the spring months. It is usually a little more successful and satisfactory to do the work before growth starts in the spring, but the pruning should not be delayed a year on account of the inability of the manager to do the work at an early season. The later the pruning is done in the spring the stronger is the tendency toward the checking of growth, or, if it does not do this, it will be less stimulative on wood growth and result in accomplishing no more than simply the removal of the wood that has been cut away. In some cases the latter may be highly desirable.

Wounds made on large branches sometimes "bleed" when made in the middle of the rapid-growing season. It seems, however, that there are other conditions more influential in causing the bleeding of wounds than the mere date of cutting. If pruning is done after growth starts, more care should be exercised to paint the wounds. If bleeding takes place so that paint will not cover the wound well, then the wound should be scraped and well painted and soaked with a disinfectant like Bordeaux mixture or the corrosive sublimate. If this is done, these bleeding wounds will not serve as sources of infection or spread of pear blight and other diseases.—O. M. Morris, Horticulturist.

Pullman, Wash.

SMALLEST TOWN WITH WATER SUPPLY.

Sharon Center, Medina county, Ohio, enjoys the probable distinction of being the smallest town in the state, having a system of water works. From the side of a hill well above the general level of the village, a strong spring flows from the sandstone rock. The stream from this spring fills a four-inch pipe, and the flow does not vary perceptibly with the change of seasons. A large cement tank holding 900 barrels has been built farther up on the summit of the hill. A hydraulic ram has been set a little below the outlet of the spring. From this, water is forced into the tank. A service pipe leads from the tank to the town almost a mile away. This water, coming as it does from the sandstone rock, is pure and has the added advantage of being soft. There are many farms in Ohio where it would be possible to install a hydraulic ram and service pipes to supply the house and barn with an abundant supply of fresh pure water. In many cases there is a nearby hill high enough above the house where a cement storage tank could be located, thus insuring a constant supply safe from frost.

Weekly Market Report

Cattle and Hogs Lower—Cattle in Fair Supply and About 10c Off. Hogs Decline 10c to 25c.

CATTLE—Supply of beef steers moderate and quality of medium to good, nothing strictly choice to prime being offered. The supply also carried quite a goodly proportion of steers suitable for stock and feeding purposes. Market was inclined to be somewhat uneven, but while a few places looked slow, the general trade was fairly active. What few good beeves were on sale were taken over by the buyers at a seasonable hour. The big end of the steers looked weak to 10c lower, barring a few steady spots. The general market averaged fairly active at weak to dime lower prices. There was a seasonable clearance.

Heifers were in fair supply. Quality was good, there being quite a few bunches of choice to prime grades available. The demand was hardly as good as it was last week, particularly for outsiders, and while best grades of heifers were wanted and buyers willing to pay steady prices, yet medium kinds were rather slow of disposal and prices on a weak to dime lower basis and in places there was a 15c decline. A load of yearling steers and heifers topped the market at $9 and a goodly offering of heifers went at $8@8.75. A moderate supply of cows was available and quality only ordinary. Both butchers and packers were operating and market was steady throughout. Movement was good. Bulls were steady.

There was a demand equally for stockers and feeders and anything which suited the purpose of the buyers found comparatively ready sale. Prices were steady and the market reflected a good tone. A couple of bunches of feeding steers made $8, which was the best transaction in this division. Demand for she-stuff was good and the small supply available moved early.

All the Texas steers were grassers, and mostly of medium to fairly good quality, although nothing strictly good was offered. There was a good demand for the steers and they sold early in the day at steady prices. The top was $7.60 and most of the steers sold at $7@7.50. There was no change in the trade in canners and yearlings. Supply was very light, but there was a good demand for what was offered and prices looked fully steady. Quarantine clearance was early.

HOGS—The liberal run here and at other points caused a break in the market and local values were 15c lower in all cases and the general trade was considered to be 15@20c lower, while pigs and lights were right around 25c lower all day. The trade closed rather weak, and there were a few loads of hogs still in the hands of the commission men.

A load of good hogs from the state of Iowa sold at $8.50, which was the top of the market, and, by the way, it was the top of all western markets, as none of the others reached that figure. The local bulk went at $8.35@8.45, but there was some plain light weights around $8.25 or but little better. The market was fairly active and the good hogs sold during the early hours of the day. Packers were out much earlier than usual and purchased a lot of hogs at $8.30@8.40 and rough heavy hogs at $7.85@8.00.

What hogs met with the approval of shippers and city butchers and weighed 180 pounds and over found ready sale at $8.42½ and up to the top of the market, and quite a lot more of the same kinds were needed to meet the demand, while packers purchased readily the plain and mixed hogs largely at $8.25@8.40. Packers were willing to purchase more hogs than they were able to secure.

Best grade of lights weighing less than 165 pounds sold at $8.15@8.40, fair kinds went at $7.85@8.10, best quality pigs under 125 pounds sold at $7.65@8.00, fair grades $7.10@7.50 and the poor sorts $6.50@7.00.

SHEEP—The market was in good shape, as all buyers were active in their operations and prices were around 15c higher in most cases, with some of the best spring lambs showing a greater gain than this.

The best spring lambs were from Tennessee, weighed around 68 pounds and brought $9.65, and while they were good they were not considered choice by quite a lot, so that real good ones would have brought around $9.75. Other good spring lambs sold at $8.50@9.25, and the seconds around $8. A load of western wool lambs brought $8.35 and clipped lambs from Colorado sold at $7.55 and $7.60, both prices being higher than any lambs have sold here previously this season. A few wool sheep sold at $6.25, but practically all of the sheep were clipped and sold at $5.50, at which price they were ready sellers, owing to the good strong demand that prevailed. Stockers and choppers sold at $3.25@4.25, while bucks went at $4.50@4.75. The market closed in good shape, with the offerings well cleaned up.

HORSES — The eastern sections were well represented and buyers like last week got in early and took their kinds at steady values. The horses most desired by these purchasers were the good quality kinds of chunks and drafters. The southern trade exhibited no material changes from last week and the opening trade was on a very good, steady basis.

MULES—The kinds that were in demand were the quality kinds of mules and sellers say that all types sold extra well. The common grades are meeting with poor outlets and shippers should keep them off the market.

400,000 Settlers a Year

Immigration figures show that the population of Canada increased during 1913, by the addition of 400,000 new settlers from the United States and Europe. Most of these have gone on farms in Manitoba, Saskatchewan and Alberta.

Lord William Percy an English Nobleman says

"The possibilities and opportunities offered by the Canadian West are so infinitely greater than those which exist in England, that it seems absurd to think that people should be impeded from coming to the country where they can most easily and certainly improve their position."

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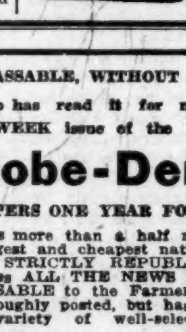

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The Pig Pen

LET THE HOG BALANCE HIS OWN RATION.

A unique experiment, one not pretentious nor weighed down with figures that no one could understand, has just been completed in one of the popular and up-to-date experiment stations of the country, says Successful Farmer.

Everybody knows what good "horse sense" means, yet nobody has ever thought there could be such a thing as "hog sense." It dawned at the said experiment station that there might be, and after consideration it was decided to try an experiment. (Nobody with a reasonable amount of grey matter under his hat doubts the general proposition that experimenters have discovered many truths. The wisdom of Congress in establishing research stations in agriculture as early as the fifties is no longer called in question.)

The method of letting the pig balance his own ration was: two lots numbering 20 pigs each, averagiing 40 pounds, were selected for the test. They were given alfalfa forage on equal conditions. Lot 1 was to be man-fed and to have ear corn and meat meal, 19 parts corn, one part meat meal with the supplement crop. Lot 2 had placed for them a self-feeder and were given shelled corn and meat meal as they would clean it up nicely, allowing them to decide the amount of corn, meat meal and alfalfa they would use.

At the end of the test Lot 1 averaged 150 pounds and Lot 2 averaged 185 pounds. It was found that Lot 2 had consumed 6.4 per cent meat meal instead of 5 per cent for Lot 1 and had used less corn to the extent that 100 pounds gain cost Lot 2 $5.04 and Lot 1 $5.30. The amount of meat meal diminished and corn increased as the pigs grew older and heavier.

FEEDING HOGS.

The following demonstration which was by no means intensive, indicates that what any farmer can do with hogs on a soil of average fertility:

Farmer A had 40 acres of corn which made 60 bushels per acre. He sold the corn for 50 cents per bushel, or $1,200 for the crop. Farmer B on the same kind of land, planted 20 acres of corn, 10 acres of alfalfa and 10 acres of rape. Early in the spring 15 sows with 120 pigs were turned into the alfalfa field, and later into the rape pasture. During the season they were alternated between the rape and alfalfa. When the corn was nearly ripe, all of the hogs were turned into 15 acres of it; the remaining five acres were husked for the sows during the winter. After the corn was hogged down, the pigs were sold for $16 each, or $1,920 for the lot. While they were in the alfalfa and rape pastures, they were given 300 bushels of corn ground together with the cob. The figures indicate that Farmer B made a greater profit than Farmer A from 40 acres, to say nothing of the fertility that remained on the farm: Farmer A 40 acres of corn, 60 bushels at 50 cents per bushel, $1,200.00; Farmer B 120 pigs at $16 each; $1,920.00; 300 bushels corn at 50 cents, $150.00; total, $1,770.00; gain, $570.00.

It will be seen that Farmer B had $1,770 from his 40 acres, and Farmer A $1,200. Each farmer did his own work. The value of Farmer A's stalks was certainly not greater than the value of Farmer B's five acres of corn which he saved for his sows.—Exchange.

CARE OF HOGS AT VACCINATION.

Bad results sometimes follow improper or careless methods of handling and feeding, both prior to and immediately after vaccination, in spite of the fact that clean, potent serum and fresh, uncontaminated virus were used. Among the things that can be done to contribute to good results are the following:

Feed the hogs moderately for 24 hours before vaccinating. Do not fast them, as this will cause them to be wild and hard to handle.

During hot weather, vaccinate early in the morning or towards the evening, rather than in the middle of the day, when it is hot.

The hogs should be kept in a clean dry place before vaccination. This is better both for the hogs and for the persons who are to handle them.

If possible, group the hogs according to size. This will lessen the chances for error in estimating the doses of serum to be injected.

Provide a box or table on which to place the bottles of serum and virus, disinfectants, syringes, etc., where they will be convenient but not likely to be upset.

It is even more important that the hogs be kept clean and dry after vaccination, to reduce to a minimum the chances for infecting the needle wounds.

Get the hogs into an enclosure where they can be caught without chasing them. This should be done before the arrival of the veterinarian.

Special attention should be paid to the feeding of the hogs after vaccination. Corn should be excluded from the diet entirely for at least a week. Give reduced rations of slightly laxative feeds.

Watch the hogs carefully for at least three weeks after vaccination, especially if the double treatment has been used. If all goes well for three weeks, there is little to be feared later on.

If any hogs show signs of sickness following the double treatment, they should be isolated from the rest of the herd. Sometimes another dose of serum will save them.

If an abscess forms at the point of injection, it should be opened promptly, and given a chance to drain. Very few abscesses should occur, however, if the foregoing rules are followed.—H. Preston Hoskins, Assistant Veterinarian, University Farm, St. Paul.

MEETING OF AMERICAN MULEFOOT HOG ASSOCIATION.

At the recent annual meeting of the American Mulefoot Hog Record Association, held in Columbus, Ohio, John H. Dunlap, of Williamsport, Ohio, was re-elected president; Prof. C. W. Burkett, of New York, vice president, and R. E. Pfeiffer, secretary.

Applicants for membership are coming in from all over the United States to the association and the future seems very bright for this association, whose management is composed of men of experience and ability. Mr. Dunlap is the largest breeder of this hog and has spent a great deal of time and money bringing them before the people through the farm press and by exhibiting them at the state fairs. He was the first breeder to advertise the Mulefoot extensively, and has made sales in every state and in foreign countries.

Mr. Dunlap's position on the Live Stock board of Panama Pacific Exposition assures this great breed a place at the 1915 show and will bring the merits of the breed before all the world. The secretary does not breed or handle hogs and members are assured of a square deal by him.

Two herd books were published by this association during the past year. They are both free to new members who join while the supply lasts. The price to non-members is $2.50 each.

THE MISSING HOG.

A farmer wrote as follows to a distinguished scientific agriculturist, to whom he felt under obligations for introducing a variety of swine.

"Respected Sir: I went yesterday to the swine show, I found several pigs of your specie. There was a great variety of hogs, and I was astonished at not seeing you there."

The Shepherd

POINTS FOR THE HAMPSHIRE SHEEP.

We have had Hampshire ewes give birth to lambs in November, and again the following April, but we do not claim greater prolificacy on that account. The present season we have had only about a dozen single lambs dropped among 60 ewes, and have living over 1½ lambs to the ewe, having lost about 12 or 15 by various causes, principal of which was the use of some unsuitable fodder in feeding the ewes, we being very short of alfalfa this year. So we find the Hampshire a very prolific sheep and the lambs usually weigh from 18 to 25 or 30 pounds to the pair. We often have two or three sets of triplets in a season, and raise them successfully. We believe that the average Hampshire is a little more prolific than any other breed. But chief of the Hampshire's assets is the fact that they drop large lambs, thus giving them a good start. The lambs grow faster and larger than from any other breed, often with good care weighing 90 to 100 pounds at 100 days old. The ewes are good milkers, and give good account of hay and grain fed to them. Here, then, we have what every man should be looking for, the ewe that will give the largest flow of milk and the largest lambs that grow on the milk. It is the lamb that makes the profit, and the great western ranches know this to be so; today there are probably more Hampshire rams being used on range flocks than of any other breed, and the Hampshire lambs are topping the market in Chicago at 80 pounds weight straight from the range. An immense Hampshire flock has just been started in Wyoming to furnish rams for the range, and we all know of Cooper's big stud in Illinois.

Sometimes we wish that it might be a Hampshire that would get the grand champion wether prize at the International from the Southdowns or Shropshires, but then we console ourselves with the thought that it is the dollars jingling in our pockets that we really need rather than the glory. Some day we shall have the glory too. The Hampshire is like the Shorthorn; it prefers to make good in the everyday walks of life rather than in the showy places.

Now, some generalities about sheep. First, pick out the sheep that suits you best, remembering that unless you are going to raise Winter lambs you want one that raises the biggest, best lamb right from the time it is dropped. Then give it the best of feed and care. Give the ewe some oil cake, bran and a little corn, with clover hay or alfalfa. Make a creep for the lambs before they get over two weeks old, and see them grow. Feed them in the creep some bran, oil cake, ground oats and cracked corn, and as they get older, some hay. If the lambs do not come until pasture, do not turn them out too early and then try to have some rape to which you can turn them when about two months old. If necessary to wean the lambs so they may have clean pasture, do so when they are about four months old. Mix one pint turpentine, one pound sulphate of iron and one pound gentian in one bushel fine salt, and keep before them all the time as a preventive of worms and as a tonic. It pays well. Just try making your lambs grow as fast as you can right from the start, and as soon as they get to weigh 60 or 70 pounds or more sell them. You will find that they do not cost nearly as much as where you keep them all Summer and then feed until January or February, and you will be that much ahead.

If you have your lambs come early and one gets chilled, take to the house and immerse to its ears and nose in just as hot water as you can bear your hand; give a teaspoon of stimulant in sweetened water and rub dry. Be careful it does not again get chilled. You will be surprised what apparently hopeless cases you can bring to life. Have plenty of Epsom salts on hand, and if a ewe does not come to her milk at once or has garget, give her one-quarter pound in water. Watch the lamb and see that he passes yellow manure within 24 hours after birth; if not, give him an injection of warm, soapy water. For scours in the lambs, give castor oil in doses of one or two teaspoons. Always make it a point at each feeding time when the ewes are lined up at the hay racks to notice each lamb, to see that none is bloated, scouring or otherwise ailing. Remember that most trouble with sheep comes from improper feeding and lack of exercise. Get "The Domestic Sheep," by Stewart, and if you have any sick sheep, try to diagnose from what you may learn in that book. You will usually find the trouble with the feed.

We have spoken rather briefly of various topics in the business of shepherding in this article, but later want to say something about choosing a ram and about keeping to one breed once you have chosen that s" your breed.—Rural New Yorker.

WHAT MEXICANS CALL US.

The story is that when the United States troops invaded Mexico in 1846 they used to sing a popular song of the day that began, "Green grow the leaves of the hawthorn tree." The Mexicans came to associate the song with the invading army until they began to call the detested Americans "the greengrows," or "gringos." Mexicans now apply it as a term of contempt to all Americans.—Youth's Companion.

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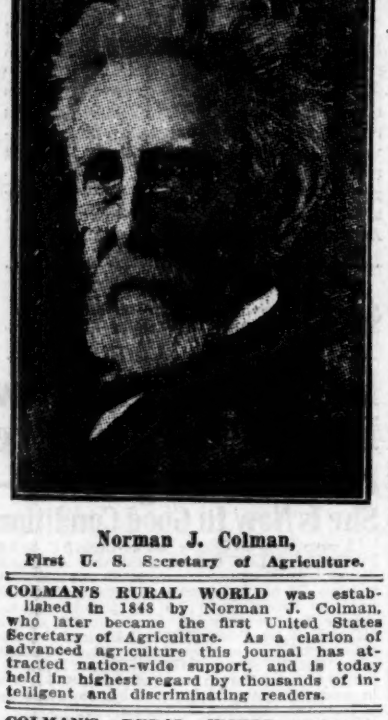

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With crop prospects even better than the record-breaker of 1913, prosperity is sure to come and remain with us.

The minimum salary for clergymen as fixed by the New England conference of the Methodist Episcopal church is worth remembering. It is now to be $850 and a parsonage in small towns, and $1,000 and a parsonage in large towns and cities. No deductions allowed by the standing committee for Christmas presents to the minister, or for what comes to him at donation parties.

More than 220 conventions, at which more than 500,000 accredited delegates are expected to assemble, will meet at San Francisco during the Panama-Pacific International Exposition in 1915. Among these are 21 agricultural societies; 20 business; 22 educational; 35 fraternal; 7 genealogical; 23 Greek letter fraternities; 15 governmental and civic societies; 5 historical and literary; 15 industrial; 9 labor; 13 professional; 8 religious; 19 scientific and 7 social service.

The report that the severity of the winter has been followed by the reappearance of wolves in Maine, where they have not been seen for many years, is a reminder of the variable effect which encroaching civilization has upon the wild beasts of the forest. Doubtless the too common idea is that before the coming of the white man there were more wild beasts of all sorts than today. This is far from being true. For, by hunting down and killing off certain species, man has in various instances made it possible for other species to multiply as never before. A case in point, according to the old woodsmen, is that of the deer and wolves in Maine. Fifty years ago, when wolves were comparatively plentiful in sections in which today they are never seen, the deer were scarce. But as the wolves were killed off the deer increased. The earlier condition may be seen today in portions of Canada, in which, in spite of apparently good feeding grounds, deer are practically unknown, although the more powerful moose survives in spite of the wolves.

SILOS REDUCE ACREAGE NEEDED.

The experience of F. H. Gibbs, Brunswick, Ohio, illustrates how a more intensive system of agriculture naturally follows the taking up of dairying. Fifteen years ago Mr. Gibbs was the owner of 180 acres of land. About that time he went into the pure bred Holstein business. He sold 80 acres of his farm and was still able to keep as much stock as he had previously kept. This was largely due to the fact that he built a silo. Now, he says that by putting up another silo for summer feeding, he could decrease his farm to 60 acres and still keep as much stock as he had on the original 180 acres. Mr. Gibbs is a believer in the square silo. He built such a silo 15 years ago on which no repairs have been necessary since. With the exception of the hard pine lining, all the lumber used was hard wood that was sawed from native timber. From five to six acres of corn are usually sufficient to fill this silo as yields of corn on this farm have often been more than 100 bushels to the acre.

INTERNATIONAL PEACE.

The analogy between a neighborhood of natural individuals and a neighborhood composed of artificial persons called nations, writes Frank S. Roby in the April Case and Comment, The Lawyer's Magazine, is perfect, and methods which keep peace in the one will keep peace in the other. The chief basis for war is found in the desire for territorial aggrandizement. Other causes of controversy arise, but this main one furnishes a sufficient illustration for the point which it is here desired to make.

Territorial aggrandizement is not solely a national desire. Before there was any government, when society was in its infancy, it would be easy to imagine the two strong men of the island fighting to the death for the possession of a fertile point of land, a flowing spring, or an overhanging tree of fruit. The primitive man is in us after all. The desire to own more land, to increase our acreage, and extend our boundary lines, is keen and common. Line-fence controversies occur quite frequently in Indiana. Farmers who have been friends for years become over night, when such controversies begin, bitter and implacable enemies. The fires of passion blaze and burn at once, but neither man goes for his Winchester rifle. Left to themselves a bloody conflict would be inevitable, but the common welfare of the citizens of the civilized neighborhood of which the contestants are members demands that there shall be no conflict, and the will of every other person in the community to that end is made manifest to the disputants in such manner as to compel them to acquiesce therein. Instead of Winchester rifles, they go for a surveyor. The line is rerun; if arbitration is not had, an action in ejectment is brought, in which event evidence is heard and a judgment rendered, to which both parties bow and by which their respective rights are forever settled.

GOVERNMENT TRYING BASKET WILLOWS IN SOUTH CAROLINA.

An investigation to determine the advisability of growing basket willows in the low-lying lands along the South Carolina coast has recently been started through co-operation between Clemson Agricultural College, the office of Farmers' Co-operative Demonstration Work, and the forest service of the United States Department of Agriculture.

Much of the low-lying land in this region has previously been used for the production of rice, but several factors, including the development of new rice areas in the gulf states, have made rice growing unprofitable and a new crop for the land is being sought. Basket willows at once suggested themselves as a possibility, and the present investigation is being conducted to determine to what extent they can be successfully grown on lands of this character. The soil is a rich, black muck, and the continuous production of good crops of rice for years with little or no fertilizer indicates its richness.

It seems probable to the agricultural experts that basket willow rods of commercial size can be raised, but definite proof of this and of the best methods to use is necessary before willows can be fully recommended. One difficulty met with in all basket willow operations on a large scale, is said to be the securing of satisfactory labor. The operation of cutting and peeling the willows must be carried on during a comparatively short period in the spring, and labor of a fair degree of skill must be available to perform the work expeditiously and well.

The present experiment is being carried out with approximately 1,000 cuttings of eight varieties of basket willow, representing practically all of the types which give promise of being at all successful in the locality. These cuttings are set out in rows about 100 feet in length, running from the wetter to the drier ground in order to test them under various conditions of soil and moisture. The rods will be cut back each spring, and the experiment continued for several years until conclusive results as to the adaptability of the various species are obtained.

A BIRD CENSUS OF THE UNITED STATES.

A census of all the birds of the United States is suggested for this summer and the United States Department of Agriculture is inviting bird lovers throughout the country to co-operate in taking it. The object is to determine how many pairs of birds of each species breed within definite areas. By comparing these figures with those of subsequent censuses, it will be possible to ascertain whether the present state and federal laws are effective and game and insectivorous birds increasing or diminishing in numbers. Voluntary observers are relied upon to furnish most of the desired data to the department.

As a beginning the department has asked about 250 correspondents throughout the country, who have previously rendered valuable service, to follow a general outline in supplying information. Any one wishing to aid in this good work is cordially invited to send similar information to the department.

The correspondents have been advised that the census of the birds should be taken over some area that fairly represents the average character of the country in the immediate neighborhood. The area selected should represent average farm conditions, but without woodland; should be not less than 40 acres (a quarter of a mile square) and not more than 80 acres, and should include the farm buildings, shade trees, orchards, fields of plowed land, and pasture.

It is desired to take a census of the pairs of birds actually nesting within the selected area. Birds visiting the area for feeding purposes should not be counted, no matter how close their nests to the boundary lines.

It is practically impossible to make this census on the scale of 40-80 acres in a single day. A plan which has been used with advantage for several years is to begin at daylight some morning the last of May, or the first week in June, and zigzag back and forth across the area, counting the male birds of each species. Early in the morning at that season every male bird should be in full song and easily counted. After the migration is over and the birds are settled in their summer quarters, it is safe to consider that each male represents a breeding pair.

The census of one day should be checked and revised by several days of further work, in order to insure that each bird seen is actually nesting within the area, and to make certain that no species has been overlooked.

May 30 is about the proper date to begin the census in the latitude of Washington. In the latitude of Boston, the work should not begin until a week later, and south of Washington an earlier date should be selected.

The final results of the census should be sent to the Biological Survey, Department of Agriculture, Washington, D. C., about June 30, and should be accompanied by a statement of the exact boundaries of the selected area, defined so explicitly that it will be possible 25 years hence to have the census repeated. The name of the present owner of the land should be given, together with a careful description of its character, including a statement whether the area is dry upland or moist bottom land, the number of acres in each of the principal crops, or in permanent meadow, pasture, orchard, swamp, roads, etc.; the kind of fencing used, and whether there is much or little brush along any fences, roads, or streams, or in the permanent pasture.

A second census desired is one of some isolated piece of woodland comprising from 10 to 20 acres. In giving the results of this census the number and kinds of trees in the woodland should be stated as well as whether there is much or little undergrowth.

Still a third census to be taken is that of some definite area—40 acres for instance—forming part of a much larger tract of timber, either deciduous or evergreen. While the number of birds on such a piece of land will be far less than on an equal area of mixed farm land, their correct enumeration will require considerably more care and time.

The department also will be glad to have information concerning any changes noted in the bird life of any locality, especially if the observations extend over any considerable number of years.

In the past, under mixed game regulations of various states, bird life has been decreasing. Now that the birds have been placed in charge of the United States Department of Agriculture, definite and uniform measures are being taken to preserve them and increase their number. The new bird census and the censuses to follow will materially aid the department in its effort to preserve a valuable national resource, and the voluntary efforts of bird lovers in aid of this movement will be appreciated.

SOIL IMPROVEMENT.

By C. D. Lyon.

Scores of times at institutes, and in many states, I have told "The Story of an Old Farm." It is my farm, it was my father's farm, my grandfather's farm and my great grandfather's farm, part of the land he settled on about 1795. Hill land, most of it, only gently rolling, part cut up by ravines which are now all crossed with binder, corn planter and sulky plow, and perhaps 20 acres so steep that it is not adapted to the use of such machinery as those named.

Great grandfather never farmed this part of his land, and up to his death, in 1820, his wife's widowed sister lived on it. Then at her death it was rented out until 1852, when father took possession of it, and its condition at that time can be imagined. Father was never a strong man, a sufferer from asthma, and while he got the briars and grub pretty well cleaned up, there were thin spots in nearly all of the fields 30 years ago, when I took full charge of it, and in many places there were gullies and the ravines mentioned, too deep to cross with even a common walking plow. I made it my first aim to see that no new gullies started, and began to fill the old ones, an undertaking in which I have succeeded so well that I am not ashamed to have anyone see the farm. It was a rule to never throw trash, briars, weeds, corn stalks, brush, stone or anything else in a hollow or wash, unless it was covered with dirt and in

the case of stone, they are always broken fine. We did not attempt to do too much filling at once, preferring to attend to just as many of them as possible whenever a field was plowed, and when the fields were sown to small grain, it was always made a point, to sow both grain and grass seed double thick in the bottoms of all washouts.

In using stone, we made beds, crossing the washes, having these beds extend from bank to bank, putting in the stone four or five inches thick and perhaps three to five wide, a rod or so apart. Last week Harry crossed several of these stone beds with the sulky plow, and even though he often went eight inches deep, he never touched the stone, many of them being covered several feet deep. This is all "made soil" and grows the best of crops.

It used to be customary to plow all the land in a field when that field was broken, poor spots and all, and most of us old farmers have followed plow and cultivator over many such a spot, from a dozen rods in extent to an acre or more knowing well that it would produce nothing.

I quit that many years ago, and especially if there was some grass on the thin places, instead of breaking them once in four years, they were allowed to lay eight and twelve years.

In the meantime any old straw or hay, corn stalks or rough manure, too coarse to use on crops was scattered over the clay spots, and in several cases cowpeas were planted on them, to the end that at this time they all produce well and especially in grass.

Clover sickness that prevailed all over this part of Ohio for nearly 30 years, or from "in the 60s" to about 15 years ago, was a serious matter for us in the work of soil improvement, but we sowed clover every year, getting part of a stand at times, a good one in a long time, but mostly failure.

Since this condition of soil has run its course and passed away, we are getting fine clover crops, and in the past 12 years or 15 years, we can see the effect of the clover in increasing fertility.

Of course, we always made and applied all the manure possible, most of this being used on the tobacco crop, not rationally, it is true, for we did not know until perhaps 10 years ago, that "the benefits derived from manure are in inverse ratio to the amount applied" as my good friend, Director Thorne, has put it.

Now we manure ten acres with the same amount that we used to apply on three, and this has been another factor in more rapidly increasing fertility in the past 10 or 12 years.

Our rotation has been, plow crops, small grain, timothy sown in the fall with wheat or rye, clover sown in spring, then let the land lay two years.

By these practices we have brought more than 20 acres of our 103 to a fair state of fertility where it was almost barren 30 years ago.

I will write more of this at another time.

CARRYING ANIMAL DISEASE.

By C. D. Lyon.

While I read veterinary medicine as a matter of information, I have never studied it, nor have I studied bacteriology, yet once in a while something happens that even a layman may do good by putting it on record.

Sam is a farmer and a hog dealer, buying by the carload and shipping to the city markets. He lives in the district mentioned in my hog cholera article in Rural World April 30. Some time in middle March Sam shipped two carloads of hogs, and in ordering cars to take them, secured the privilege of bringing from the city 10 calves, six for his own farm and two for each of two neighbors.

About two weeks after the calves were put on the three farms, hog cholera appeared among the hogs on each farm, and a few days later on the third.

It was several days before the true nature of the disease was discovered, and by that time nearly all the hogs on the three farms were dead, and the disease had spread to three or four other nearby farms and herds. I hear that the veterinarians have the outbreak under full control, but it carries a lesson worthy of remembering.

3½ Foot Telescope ALMOST FREE

THERE are a thousand uses for this instrument in every home and on every farm or ranch. You can see what your neighbors are doing who live miles away from you. It will bring the remotest part of your farm to your door. You can tell who is in a carriage long before they reach you. You can view and count stock on distant parts of your farm or ranch.

POSITIVELY such a good telescope was never offered in such a liberal manner before. These telescopes are made by one of the largest manufacturers of Europe; measure closed, 12 inches, and open over 3½ feet in five sections. They are brass bound, brass safety cap on each end to exclude dust, etc., with powerful lenses, scientifically ground and adjusted. Guaranteed by the maker. Everyone living in the country should have one of these instruments. Objects miles away are brought to view with astonishing clearness.

Used as a microscope it is found of infinite value in discovering microbes and germs in plants, and seeds, etc.

Heretofore telescopes of this size with solar eyepiece and multi-focal lenses, have sold for $8 to $10, or even more. We do not claim our telescope is as nice and expensive in every particular of construction as a $10 telescope should be; that would be unreasonable; but it is a positive wonder for the price. Each telescope is provided with 2 interchangeable objective lenses—one for ordinary range and hazy atmosphere, the other for extra long range in clear atmosphere, increasing the power and utility of Telescope about 50 per cent.

Can Count Cattle Nearly 20 Miles Away.

F. S. Patton, Kansas, says: "Can count cattle nearly 20 miles away. Can see large ranch 17 miles east, and can tell colors and count windows in the house."

Saw an Eclipse of Sun.

L. S. Henry, The Saxon, New York, writes: "Your Solar eyepiece is a great thing. I witnessed the eclipse at the Austrian Tyrol when the sun was almost 80 per cent concealed."

Could See Sun Spots.

Rutland, Vt., Feb. 16, 1910.—Telescope arrived O. K. I have seen the spots on the sun for the first time in my life.—Dan C. Safford.

EVERYBODY WANTS A GOOD TELESCOPE

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These telescopes are imported from German manufacturers. They represent the best skill of the old world. Labor there is much cheaper than here, hence the low price at which these wonderful telescopes are able to be sold. **We guarantee this telescope to be as represented in every way.** It is marked for adjustment, so that anyone can adjust it to the marks, and by a little practice can regulate the lens for various distances.

Scores of owners of this telescope would not take $5 to $10 for their instrument, if they could not get another one. They give universal satisfaction. Everyone is delighted.

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Send us $1.00 to pay for a one year extension on your subscription to our big farm paper Colman's Rural World and 35 cents extra to help pay mailing and packing charges on the complete telescope outfit, which will be sent postpaid (total amount to remit, $1.35). Absolute guarantee of satisfaction or money refunded.

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Home Circle

MUSIC OF THE NIGHT.

There are harps that complain to
the presence of night,
To the presence of night alone—
In a near and unchangeable tone—
Like winds, full of sound, that go
whispering by . . .
Yes! harps that complain to the
breezes of night,
To the breezes of night alone;
Growing fainter and fainter, as rud-
dy and bright
The sun rolls aloft in his drapery of
light
Like a conqueror shaking his bril-
liant hair
And flourishing robe on the edge of
the air . . .
Rolling on and erect in a charioting
throne.
Yes, strings that lie still in the gush-
ing of day,
That awake, all alive, to the breezes
of night;
There are hautboys and flutes, too,
forever at lay
When the evening is near and the
sun is away,
Breathing out the still hymn of
delight; . . .
These strings by invisible fingers are
played— . . .
But thick as the stars, all this music
is made;
And these flutes alone,
In one dreamy tone,
Are ever blown,
Forever and ever.
The livelong night ye hear the
sound,
Like distant water flowing round
In ringing caves, while heaven is
sweet
With crowding tunes, like halls
Where fountain music falls,
And rival minstrels meet.
—John Neal.

A WELCOME LETTER.

By Walter S. Whitacre.

Dear Home Circle: As several correspondents in the Home Circle have recently expressed a desire to hear from the old writers, I cannot further postpone a long intended letter. In reading Idyll's and Aunt Ray's letters of the present week I seem to hear them mentally calling the roll of those whose names have been familiar in the past, but who are conspicuous by their absence in these later times.

As for myself, I have never been one of the "noted "writers who would be likely to be missed, but I feel like responding to the roll call and I hope my "Here!" will be heard all round the circle.

I have been acquainted with the Rural World ever since my boyhood days when it came as a little monthly magazine called the Valley Farmer, and have been a reader of the weekly paper for the past 20 years. I began writing for the Family Circle two or three years before the World's Fair at St. Louis and continued to write more or less regularly for five or six years afterward. I speak of the Fair period because, in my estimation, the first half dozen years of the present century saw the Rural World and especially the family department at the height of its prosperity and popularity.

My silence during the last few years has not been due to a lack of interest, but to a lack of health. And the more I have had to keep quiet the greater has been my appreciation of the other writers, and the more I missed them when almost all the familiar names ceased to appear.

Now, dear friends, let us get busy and revive the old time interest in this department. But as we come together again we must not all spend our time in idle gossip, as I am so prone to do, but I am sure many of you will have words of cheer as well as words of instruction to offer.

I notice that some of the old familiar names do not appear more than once or twice a year, but now let us take time to be sociable in the old way. Let us get acquainted again. With most of us I think the chief thing necessary is just to "get the habit." Let us have a rally this summer, a reunion, a little outing outside of ourselves, as it were, and a mental picnic.

The only difficulty I see confronting us is that our meeting place has shrunk to such small dimensions that I fear some won't get in when they do come. I anticipate, however, that the editors will make room for all who come, but if we cannot all get in it will do us good anyway, even if we have to stand outside and peep through the window. Now let every old writer consider this a personal invitation and come with basket (letter) well filled.

THE LONG AGO.

Editor Rural World: Will write a few lines today. As I said in a previous letter my father was a pioneer farmer of Kansas, had to put up with a great many hardships that the farmers of today know nothing about, for instance cutting wheat, they used cradles in those days. They bound the wheat by hand, that was awful slow work to the way they do now. The binders would rest when they bound their part. There was a man cutting wheat one day and he was afraid his men would rest too long, so he told them they could shock wheat while they rested. That was a queer way to rest, I think. I have seen the gray wolves trot across the prairie in broad day light, and at night the coyotes would keep up such howling one could not sleep. There is not very many people that ever saw prairie chickens; they were plentiful then, as most any kind of birds here now, and the ponds would be covered with ducks and geese. It was no trouble to step out and kill game in those days. My father just delighted in hunting. I have seen so many pigeons flying at one time as to look like a dark cloud. They made such a queer noise when flying, but I guess the pigeons and prairie chickens are almost extinct now, and I think the quail will all soon be gone if we don't protect them. Have any of the Rural readers ever seen a prairie fire? I saw a man with a team and wagon run a race with a prairie fire once. He did some driving to get to a place of safety, but he got there in time all right. Wishing the editor a long and happy life.

SARAH L. SPEARS.

Redstar, Ark.

TWO GOLDEN DAYS.

There are two days of the week upon which and about which I never worry. Two care-free days, kept sacredly from fear and apprehension.

One of these days is yesterday. Yesterday, with all its cares and frets, with all its pains and aches, all its faults, its mistakes and blunders, has passed forever beyond the reach of my recall. I cannot undo an act that I wrought; I cannot unsay a word that I said on yesterday. All that it holds of my life, of wrongs, regret and sorrow, is in the hands of the Mighty Love that can bring honey out of the rock, and sweet waters out of the bitterest desert—the love that can make the wrong things right, that can turn weeping into laughter, that can give beauty for ashes, the garment of praise for the spirit heaviness, joy of the morning for the woe of night.

Save for the beautiful memories, sweet and tender, that linger like the perfume of roses in the heart of the day that is gone, I have nothing to do with yesterday. It was mine; it is God's.

And the other day I do not worry about is tomorrow. Tomorrow, with all its possible adversities, its burdens, its perils, its large promise and poor performance, its failures and mistakes, is as far beyond the reach of my mastery as its dead sister, yesterday. It is a day of God's. Its sun will rise in roseate splendor, or behind a mask of weeping clouds. But it will rise. Until then, the same love and patience that held yesterday will hold tomorrow, shining with tender promise into the heart of today. I have no possession in that unborn day of grace. All else is in the safekeeping of the Infinite Love that holds for me in the treasure of yesterday. The love that is higher than the stars, wider than the skies, deeper than the seas. Tomorrow—It is God's day. It will be mine.

There is left for myself, then, but one day of the week—today. Any man can fight the battles of today. Any woman can carry the burden of just one day. Any man can resist the temptations of today. O, friend, it is only when to the burdens and cares of today, carefully measured out to us by the Infinite Wisdom and Might that gives with them the promise, "As thy day, so shall thy strength be," we wilfully add the burden of those too awful eternities—yesterday and tomorrow — such burdens as only the mighty God can sustain—that we break down. It isn't the experience of today that drives men mad. It is the remorse for something that happened yesterday, the dread of what tomorrow may disclose.

These are God's days. Leave them with Him.

Therefore, I think, and I do, and I journey but one day at a time. That is the easy day. That is the man's day. Nay, rather, that is our day—God's and mine. And while faithfully and dutifully I run my course and work my appointed task on that day of ours, God the Almighty and the All-loving takes care of yesterday and tomorrow.—Robert J. Burdette.

WRAP OF RED AND DRESS OF BLUE.

A charming wrap is carried out in fuchsia red chiffon embroidered finely in green and gold and various shades of the same rich red. The black straw hat to be worn with it provides a good contrast, and is also noteworthy for its crown of finely jetted tulle and splendid black ostrich feather, says the Kansas City Star.

A very pretty and youthful pale blue satin is arranged at the back with full draperies of chiffon in the same color. These draperies are caught up pannier fashion, but from beneath them a long chiffon sash falls to the hem of the skirt. The corsage is arranged with fichu folds fastened with a knot of pink flowers, from which hang long loops and streamers of black ribbon velvet. The long kimono sleeves are finished at the wrist with a double frill of the chiffon tipped with orange. A hat of the fine, shiny straw which is now fashioned is charming with this dress, and is trimmed with pink carnations and sprigs of their green, and a cachepeigne of brown velvet.

EARLY SALMON PACK.

The Pacific coast recently celebrated "Salmon day," the purpose of which the governors set forth in official proclamations. The Youths' Companion observes that this reminds the world that half a century has passed since the great salmon canning industry had its small beginnings. In 1864 three Maine men who had had experience in canning lobsters on the coast of their native state set up a crude canning plant on a houseboat on the Sacramento river, where they laboriously packed 200 cases of salmon by hand. Last year the salmon pack of the Pacific coast is reported to have been more than 8,000,000 cases, with a retail value of $50,000,000.

TRIED RECIPES.

A Winchester (Mass.) reader of the Rural World contributes these recipes, sent her by a Vermont friend, which she has tried and found excellent:

Jelly Cake—Three eggs, one cup sugar, two tablespoons milk, one heaping cup flour, one teaspoonful cream of tartar, half teaspoonful soda. Spread with jelly while warm and roll in a towel.

Custard Cake—One cup sugar, three eggs, one tablespoon sweet cream, two small teaspoons cream of tartar, one small teaspoon soda, one cup and two rounding teaspoons flour.

Filling—One cup sweet milk, one egg, two tablespoons sugar; made in double boiler as for custard. Spread on cake when cool.

Nut Cake—One cup sugar, ½ cup butter, two eggs, ½ cup milk, two cups flour, one teaspoon cream of tartar, ½ teaspoon soda, one cup chopped raisins, one cup chopped walnuts; bake 15 minutes.

Cream Sponge Cake—Two eggs, one cup sugar, ½ cup sweet cream, 1½ cups flour, one teaspoon soda, two teaspons cream of tartar. Flavor and add a little salt.

Cream Cake—One egg, butter size of butternut, ½ cup sugar, ½ cup sweet milk, one cup flour, one teaspoon soda, two teaspoons cream of tartar; bake in two tins.

Cream for Cake—One egg, one cup milk, three tablespoons sugar, one tablespoon flour.

Date Cake—One cup sugar, two-thirds cup lard, one-third cup butter, one egg, one cup sour milk, one teaspoon cloves, nutmeg, cassia mixed, two cups flour, 1½ cups dates, added before and after flour.

SUMMER EVENING.

In the lovely cool of a summer eve,
When the hot sun is setting on the
hills,
'Tis then that peaceful calmness reigns
supreme;
While the trees rustle in the gentle
breeze,
And the long grass is wet with even-
ing dew.
Now the reflection of the setting sun
Shows beautiful in some slow flowing
stream,
And his last rays shine blood-red
through the trees.
—Albert Joseph.

FREE WATCH

Our fully guaranteed Watch is highly engraved, stem-wind, stem set, simulated gold finish; desirable size for ladies or gents; late thin model, fancy bevel, new design. Given free for selling only 20 large beautiful art and religious pictures at 10c each. We trust you with pictures until sold, and give a beautiful gold plated watch fob as an extra gift for promptness. Send name today. We give a surprise gift for promptness. People's Supply Co. Dept. R.W. 710 Lucas Ave., St. Louis

ALL RUN DOWN IN THE SPRING

The reason why you feel so tired at this time is that your blood is impure and impoverished. You need the rich red blood that gives life to the whole body, perfects digestion and enables all the organs to perform their functions as they should.

Ask your druggist for Hood's Sarsaparilla. It will make you feel better, look better, eat and sleep better. It is the old reliable all-the-year-round blood medicine. Get Hood's. Nothing else acts like it.

BEAUTIOLA The Popular, Magical and Guaranteed Beautifier. The rage of the age. Accept no counterfeits. Send $1 bill and you will receive by parcel post Beautiola and Beauty Cream, with full particulars. THE BEAUTIOLA CO., Dept. C., Beautiola Bldg., St. Louis, U. S. A.

DAISY FLY KILLER placed anywhere, attracts and kills allflies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for $1.

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EXTRAORDINARY OFFER—30 days one month's free trial on this finest of bicycles—the "**Ranger**." We will ship it to you on approval, *freight prepaid*, without a cent deposit in advance. This offer is *absolutely genuine*.

WRITE TODAY for our big catalog showing our full line of bicycles for men and women, boys and girls at *prices never before equaled* for like quality. It is a cyclopedia of bicycle sundries and useful bicycle information. It's free.

TIRES, COASTER-BRAKE rear wheels, inner tubes, lamps, cyclometers, equipment and parts for all bicycles at **half usual prices.** A limited number of second hand bicycles taken in trade will be closed out at once, at $3 to $8 each.

RIDER AGENTS wanted in each town to ride and exhibit a sample 1914 model **Ranger** furnished by us.

It Costs You Nothing to learn what we offer you and how we can do it. You will be astonished and convinced. **Do not buy** a bicycle, tires or sundries until you get our catalog and new special offers. **Write today.**

MEAD CYCLE CO., Dept. N-70 CHICAGO, ILL.

GLEN RAVEN EGG FARM NOTES.

Editor Rural World:—At this writing we have over 600 eggs setting, mostly in incubators. We can beat the hens hatching. They broke too many eggs, and thereby spoil too many eggs that otherwise would hatch. What they do hatch sometimes helps us out with a 100-chick order. There is a better demand for day-old chicks this season than I had supposed there would be.

I have devoted considerable time during the past 30 years to the care of young and old fowls, but my experience with brooder chicks covers only about 10 years.

Why incubator-hatched chicks die more than those hatched by hens is a question that interests most all who hatch by artificial means and try to rear chicks in brooders. Incubators usually hatch all the way from 50 to 500 or 600 chicks, and generally the brooders to care for them are no larger in floor space than the trays that held the eggs.

Crowding of young chicks in large numbers in too small quarters is one great stumbling block, and heating up the brooder to keep them warm is dangerous if chicks are confined to the brooder. But the crowding of too many in one brooder is the greatest trouble of all. It is contrary to nature's laws. A hen is supposed to hatch and brood the number of chicks she can bring out of a batch of eggs that she can conveniently cover, and this is usually pretty close around one dozen.

If we set a 100-egg incubator, bring out 80 chicks, divide them into four lots of 20 chicks each, provide four brooders, 20x30 inches, properly heated and ventilated, we will come about as near raising them all as the hen will her dozen. But we crowd the whole 80 chicks into one brooder, 20 x30 inches; it will take care of them for a week or two and then they will commence dieing and dwindle down to about the right number (20) and we will raise them. But they will not be as thrifty and fine as if we had divided them at the beginning. Chicks kept in too large numbers are so prone to crowd. They will crowd at the feed box, at the drinking vessel and in the brooder. A hundred chicks all feathered, kept in one box, will pile up and overheat and die in spite of all we can do for them.

This is an age when we want to do things too fast. We are wanting to avoid labor, save time and trouble, but the sooner we all learn to divide the brooder chicks into smaller numbers the better will our success be.

Farmington, Mo. E. W. GEER.

ELKLAND, WEBSTER CO. NOTES.

Editor Colman's Rural World:—After a winter of scarcity, spring has come and stock of all kinds is doing well on pasture. Pastures are good where not turned on too soon.

There is very little feed left in the country and a great deal of grain has been shipped in, also considerable hay. Corn is selling at the railroad at 80c per bushel, wheat, 90c and oats at 50c; hay from $16 to $20 per ton.

Wheat and grass were never better at this time of year. Early oats are growing out since the freeze early in April. The prospects are good for all kinds of fruit except peaches and some trees are plenty full while on others the crop will be light. We hardly see how they escaped, for on the morning of April 8th the ice was half an inch thick and on the 9th as thick, and in the shade where it did not thaw it was fully an inch thick, and our folks had enough to freeze a batch of ice cream.

We are having fine growing weather at present, but have had rather too much rain, and farming has been retarded. Not half of the corn is planted and some are just through sowing oats.

There were a good many silos built in these parts last fall, and every one is well pleased with results.

Many fields were sown to rye last fall for pasture and have been a great help. Some fields are heading out.

Wheat was pastured more the past winter than usual, but shows no evil effects.

We have read the Rural World for many years and miss the old writers. Parson Heaton of Iowa was an old favorite, who, with many others, has gone to his reward. Mr. C. D. Lyon is another, but does not come as often as formerly. Mrs. McVey is another, and formerly lived in Wright county not so very far from here. There are many others we could name but space forbids. With best wishes for the Rural World, its many writers and readers, we will close.

E. C. GARDNER.

PATTERNS FOR RURAL WORLD READERS.

In ordering patterns for Waist, give bust measure only; for Skirts, give waist measure only; for children give age only; while for patterns for Aprons, say large, small or medium.

9917—Boys' Suit.

Cut in 4 sizes: 4, 6, 8 and 10 years. It requires 2⅞ yards of 44-inch material for a 6-year size. Price 10c.

9907—Ladies' Dressing Sack.

Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. It requires 2⅝ yards of 44-inch material for a 36-inch size. Price 10c.

9633—Ladies' House Dress.

Cut in 6 sizes: 32, 34, 36, 38, 40 and 42 inches bust measure. It requires 5¾ yards of 36-inch material for a 36-inch size. Price 10c.

9731—Ladies' Combination Corset Cover and Drawers.

Cut in 3 sizes: Small, medium and large. It requires 1¾ yards of 27-inch material for the corset cover, 2½ yards for the drawers with 2½ yards of embroidery 5 inches wide for ruffing for a medium size. Price 10c.

9910—Girls' Apron.

Cut in 5 sizes: 2, 4, 6, 8 and 10 years. It requires 1⅞ yards of 36-inch material for a 6 year size. Price 10c.

9918—Girls' Blouse Dress With Lining.

Cut in 4 sizes: 8, 10, 12 and 14 years. It requires 3½ yards of 44-inch material for a 12-year size. Price 10c.

9922-9920—Ladies' Costume.

Waist, 9922, cut in 5 sizes: 34, 36, 38, 40 and 42 inches bust measure. It requires 2½ yards of 36-inch material for a 36-inch size. The skirt, 9920, cut in 6 sizes: 22, 24, 26, 28, 30 and 32 inches waist measure. It requires 4⅜ yards of 24-inch material for a 24-inch size. The skirt measures about 1¼ yards at the lower edge. TWO separate patterns, 10c FOR EACH.

9908—Dress for Misses and Small Women.

Cut in 4 sizes: 14, 16, 17 and 18 years. It requires 4¼ yards of 44-inch material for a 17-year size. The skirt measures about 1¼ yards at the foot. Price 10c.

These patterns will be sent to RURAL WORLD subscribers for 10 cents each (silver or stamps).

If you want more than one pattern, send 10 cents for each additional pattern desired.

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Bust.....in. Waist.....in.

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RIGHT COUNTRY, right climate, right people, righ prices, right terms. Write Development League, Bessemer, Michigan.

WANTED FARMS from owners for sale. We have direct buyers. Send description. Magazine, particulars free. Western Sales Agency, Minneapolis, Minn.

WANTED—To hear of good farm or unimproved land for sale. Send description and price. Northwestern Business Agency, Minneapolis, Minn.

IF YOU WANT farms or ranches in the Ozarks of Missouri, farms from 40, 80, 160 acres and up, at price from $20.00 and up, write A. J. Johnston, Merchants Nat'l Bank bldg., Springfield, Mo.

FARM FOR SALE—1,600-acre farm and stock ranch for sale at low price, land is rich black sandy loam; nearly all level. Ranch is stocked with fine cattle. Will sell ranch and cattle together, or will sell ranch alone. It is on main line of Rock Island R. R., and two miles from good shipping point. Abundance of fine, cold water, never failing. This farm is all rich agricultural land, capable of producing good corn, wheat, oats and barley, and just the home of all kafir corn and sorghum families. This is a first-class cattle country. Our native grass, the Buffalo, can not be excelled for grazing and fattening. The present owner has raised upon this land per acre corn, 55 bu.; wheat, 20; oats, 50; barley, 50; kafir corn, 40; sorghum, 40 bu. Land adjoining this farm has a prospect at present for a 30 bu. wheat crop; farm is all neatly fenced and cross fenced; land all in one body and operated as one farm; exactly suited for a man that wants to farm and stock raise on rather large scale, or can be conveniently divided into three or more farms with but little expense. No encumbrance; title the best; price, $25.00 per acre, part cash, balance time, 6 per cent. If parties wishing to buy will deal direct with me, they can save big commission. I am going to make this a gilt-edged proposition to the right man,. References if desired. Address the owner, M. E. Dahmer, Missler, Meade county, Kansas.

SEED AND NURSERY STOCK.

EARLY BROWN soy beans, high yielding $2.25 per bushel. Sacks and inoculation free. Alden Coulter, Mays, Ind.

WATERMELONS, guaranteed pure Halbert Honey Seed, dollar pound; Rubber Rind, dollar fifty. H. A. Halbert, originator, Coleman, Texas.

EVERY FARMER should try Nancy Hall and Triumph sweet potatoes. Succeeds anywhere. 100 plants delivered 50c. All kinds of vegetable plants grown. Prof. Waughtel, Uptonville, Ga.

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SPLENDID BERKSHIRE Service Boars $25 each; also fine weaned pigs $10 each. Prolific, healthy stock. H. H. Shepard. Pacific, Mo.

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BARRED ROCKS, Bradley strain. Eggs $3 per hundred. Mrs. Nelson Havens, Linby, Ia.

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FOR SALE—Colored and White Muscovy Duck Eggs 12 cents each. Mrs. C. Scully, Greenview, Illinois.

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FOR SALE—Full-blooded Mammoth Pekin ducks. Eggs $1.00 per setting. Mrs. A. Brower, Rinehart, Mo.

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SINGLE COMB Brown Leghorns. First premium state fair, 1913. Eggs, $1.00 15; $5.00, 100. Circular free. Geo. L. Russell, Chilhowee, Mo.

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RINGLET BARRED ROCKS—Eggs, $1.50 setting, $4.00, 50; $6.00, 100; fair hatch. M. L. Stamper, Clifton Hill, Mo.

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MISCELLANEOUS

WANTED a location to practice as a veterinary in a good live town in Mo., 25 years' experience in treatment of all diseases. Dental work a specialty. Dr. G. W. Merritt, V. S., New Florence, Mo.

Horseman

Bizzy Izzy, 2.13¼, by Escobar, owned by C. D. Bell of Council Grove, Kan., recently foaled a filly by Sorrento Todd, 2.11.

The fastest two-year-old trotter at the Los Angeles, Cal., track is by Beirne Holt (4), 2.11¼, son of Cochato (3), 2.11½.

W. H. Marshall, of Shamokin, Pa., has located at the Troy, Pa., half-mile track, with Homeward Bound, 2.26¼, and several others.

The pacing gelding, Fred Patch, by Joe Patchen, 2.01½, and Silver Barges, 2.25, will be raced by F. G. Richards of Honesdale, Pa.

Marion Patch, 2.15¼, own sister of Dan Patch, 1.55¼, owned by John L. Young of Hamilton, Ont., has foaled a filly by C. The Limit, 2.03¼.

Mantua Maker (dam of nine), now 23 years old, by Red Wilkes, produced her 18th foal on March 29, a very handsome chestnut filly, by Axworthy.

Ecstasy (dam of Lord Dewey, 2.03), by Baron Wilkes, foaled a brown filly by J. Malcolm Forbes, 2.08, on April 10, and will be bred to Peter The Great.

The pacer, Princess Direct Hal, 2.17¼, owned by W. E. Sell of Canton, O., recently foaled a fine brown filly by Baron Peter, 2.26½, at Pontiac, Mich.

Before shipping his racing stable to Lethbridge, Alta., James Stewart of Los Angeles, Cal., worked the pacing stallion Joe McGregor, 2.14¼, a mile in 2.07.

The dates of the race meeting of the Cortland, N. Y., County Agricultural Society have been announced as Aug. 18-21 by W. J. Greenman, the secretary.

Beth Clark, 2.05¾, by Joe Patchen, 2.01¼, that made her record in a losing race and is eligible to the slow classes this year, will be raced by Rody Patterson.

Nora, by Kaiser, 2.28½, dam of W. D. S., 2.09¾, now 25 years old and owned by Mr. Stiggens of Canandaigua, N. Y., recently foaled a filly by Cecilian King, 2.08½.

Silurian, 2.25¾, now 24 years old (dam of Manrico, 2.07¼), foaled a sister to the futurity winner recently. She is the property of E. F. Barnett of Los Angeles, Cal.

Emily Ellen (3), 2.09¼, by Todd, 2.14¾, foaled a bay filly by The Harvester, 2.01, a few days ago. She will go to the court of Peter The Great, 2.07¼, this year.

William B. Eckert of Reading, Pa., will go down the Grand Circuit this year with Sellers D., 2.11¾, by Lanaret, and Peter Stevens, 2.09¼, by Peter The Great, both pacers.

NAVEL ILL OF COLTS.

This disease is also known as joint ill, omphalo phlebitis, septic arthritis of sucklings, and pyosepticemia of the newly born. The many requests for information regarding this ailment of newly born colts indicate that it exists in many localities. The unfavorable outlook after the appearance of this disease, together with the fact that the disease when present requires the attention of a veterinarian, demands that the breeder should concern himself with its prevention, says Farmer's Guide.

This disease is caused by a microorganism, and several bacteria have been suspected of being responsible for this malady. Every one of the suspected organisms is found abundantly in manure and objects contaminated with manure. The infective material gains entrance into the colt through the open umbilical cord as a result of its coming in contact with litter, floors, or discharges from its dam contaminated by one of the organisms which cause the trouble. There are cases on record where the infection has taken place before birth, and while some investigators claim this method to be the principal mode of infection, still the prophylactic measures adopted to guard against the infection through the navel cord have given good results in a large number of cases. Since infection before birth can not be controlled satisfactorily, we are justified, for all practical purposes in preventing navel ill by guarding against the infection through the cord at birth or soon afterwards.

Cleanliness of stables where pregnant mares are kept must be insisted upon. This is especially necessary where outbreaks of navel ill have been known to exist. Mares in the last stages of gestation should be placed in a box-stall which has previously been cleaned and disinfected. The bedding should be frequently renewed, and the external genitals and neighboring tissues should be kept clean and disinfected with a 2 per cent solution of carbolic acid or 1 per cent liquor cresolis compositus, or any other reliable disinfecting agent. Operations for opening abscesses and removal of after-births from cows should not be executed in the immediate vicinity of mares in an advanced stage of pregnancy.

The foal when dropped should be placed on clean bedding. In any event the cord of the foal should be washed in a disinfectant solution and tied at about one and one-half inches from the navel with a band or string which has previously been soaked in a disinfectant solution. The navel cord is then severed about one-half inch below the band with a sharp pair of scissors and again disinfected. The ligature should, however, not be tightened until pulsation of the vessels in the cord has ceased. The stump of the cord is then painted with strong carbolic acid solution, tincture of iodine, or a mixture of equal parts of tincture of iodine and glycerine. The stump should be washed daily with a disinfectant and either painted with iodine mixture or carbolic acid, or dusted with some reliable antiseptic healing powder. The parchment-like dried stump may be cut off after five days and the navel wound washed with a disinfectant solution and dusted with powder until healed.

The cases of navel ill resulting from infection before birth can not well be guarded against. By keeping those mares which are advanced in pregnancy in good physical condition the fetus will be expelled immediately upon the opening of the uterine cavity.

Once the infection of the navel cord has set in, the cord should not be ligated, but should be washed in a disinfectant solution and a veterinarian called for the subsequent treatment.

OBSTIPATION IN HORSES.

Judging by the number of cases of fatal obstruction to the bowels in horses that come to the notice of the veterinarians of the Colorado Agricultural College, there must be many thousands of dollars lost to farmers every year from this case. And this is a condition that might easily be prevented.

In the winter time the roughage is dry and succulence must be provided. A horse with good teeth and fed alfalfa, timothy, bluestem, or other well cured hays, combined with grain and plenty of water, will seldom be affected with impacted intestines, but a ration of straw, or bleached alfalfa stems picked up in the fields, combined with a low vitality, cold, poor teeth, and only snow or otherwise a limited amount of water, will furnish conditions which make fatal obstruction of the bowels possible.

The poorer the feed the more an animal must eat, and a ration of straw or poor quality of hay does not furnish sufficient nutriments to make it possible for a horse to eat enough to support life. He eats inordinate quantities of this highly indigestible food which produces distention, atony and finally paralysis of the bowels.

Most of these cases cannot be treated successfully but prevention is easy. After all it does not pay to keep animals, unless one knows how and is willing to care for them from the day they are born.—Geo, H. Grover, Colorado Agricultural College.

CORN A GOOD GRAIN FEED FOR MULES.

Experiments at the Missouri and Kentucky Experiment Stations Indicate That Corn Is Cheaper Than Oats For Feeding Mules.

A recent bulletin of the Missouri Experiment Station says:

With the tendency toward increased prices on all classes of feeds and with the increased attention to the business side of farming, the economical maintenance of mature work mules has become an important problem on many farms in Missouri and other states where mules are used. It has been the custom to maintain mules on various rations, consisting of oats, corn, timothy hay, and perhaps some other common feed stuffs. These have been fed in varying quantities and combinations. Corn has been extensively used as a grain ration. Many students of animal nutrition have given the matter consideration and have recommended a less extensive use of corn and an addition of an increased portion of oats and other feed stuffs.

It has been a prevalent opinion that oats is a better feed than corn for horses and mules. Various arguments have been presented as proof of this statement, yet the fact remains that corn constitutes a great portion of the feed given to mature work animals. The protein content of oats and the mineral content together with the physical condition of the oats as a feed have all been cited as reasons for the efficiency of oats. It has been suggested that a mixture of oats and corn for mature work mules would be a more satisfactory ration than either oats or corn alone. It was the plan of this experiment, however, to feed two lots of mules, the grain ration received by one lot to be oats alone, while corn alone should be given to the other. The roughness consisted of mixed clover and timothy hay.

The experiments were made with four mules and extended over two years.

Although the number of animals used was not large, the lots were so reversed as to tend to eliminate individuality.

Mules receiving corn and hay maintained good health and appetites, as did the mules receiving oats and hay.

The mules which received corn and mixed hay maintained their weight slightly better than did the mules fed oats and mixed hay.

The mules receiving corn and hay endured hard work in hot weather as well as did those receiving oats and hay.

No difference in spirit could be detected in the different lots of mules.

Mature mules require 3 per cent more grain and 1.4 per cent more hay to maintain approximately live weight when fed oats and mixed hay than when fed corn and mixed hay.

The mules receiving corn and mixed hay did 6 per cent more work when the number of hours is used as a basis than did the mules which received oats and hay.

No abnormal effect could be noticed in any of the mules receiving either ration.

The mature mules in the two-year test were maintained 28 per cent more economically on a ration of corn and mixed timothy and clover hay than on one consisting of oats and mixed clover and timothy hay, when corn is valued at 50 cents per bushel, oats at 40 cents per bushel, and hay at $10 per ton.

In similar experiments at the Kentucky station, comparing ear corn with cracked corn, bran, and oil meal, it was observed that "the health and spirit of the mules fed the ear-corn ration were not noticeably different from those fed the grain mixture. Both rations served to maintain the weight of the mules. The skin and hair of the mules fed on ear corn were not as soft and glossy as of those fed the mixed grain. This desirable gloss of the coat of hair was due probably to the oil meal. Because of the high price of bran and oil meal, the ear-corn ration was the cheaper. The ear-corn ration cost 30.3 cents per day, the grain mixture ration 31.8 cents.

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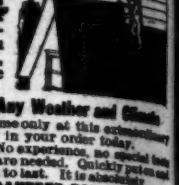

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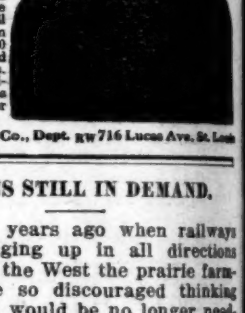

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HORSES STILL IN DEMAND.

Some 50 years ago when railways were springing up in all directions throughout the West the prairie farmers became so discouraged thinking that horses would be no longer needed that breeding was quite neglected for a time until gradually it was discovered, in spite of steam, the horse was still needed and breeding was taken up again with redoubled energy. For the past few years the motor car has been the bete noir of the horse breeders, but so far there does not seem the slightest possible reason for this fear. Farmers will always find the horse the most suitable means and the cheapest for performing their work, simply because half a dozen horses can be in a half dozen places at the same time, while a six-horse power motor cannot be divided, neither can extra speed atone for this. Many operations on the farm can only be carried out at a limited speed, such as stacking and loading at harvest time, the same with manure carting and numberless odd duties, and precisely the same applies to much of the work in the towns and at the railway stations. Let breeders pay attention to the mating of their mares this spring, discard the bad and indifferent ones whenever possible and especially the unsound ones, either sires or dams, and use only those animals which can give similar good accounts for generations. Every county in every western state now has a given number of draft stallions, mostly of American breeding from foreign stock, so that everybody can get good colts if they want them, but of course, our mares are sadly lacking in quality. We also have too many scrub stallions.—Denver Field and Farm.

A NEW HORSE DISEASE.

Dourine is popularly known as equine syphilis, horse pox, breeding disease, and covering disease.

It is very probable that range mares from a large dourine-infected district in Montana have been shipped out of Montana and into neighboring states, including Minnesota. Some mares that were known to have been exposed and some that were actually affected with dourine were shipped into Minnesota during the past year. The shipment was reported by federal authorities to our state live stock sanitary board and the affected animals were promptly destroyed. It is easily possible that other exposed mares, showing at the time no symptoms of the disease, have been shipped into this

state, hence the issuance of this bulletin as a warning to owners of horse-breeding stock to be thoroughly on guard.

It seems advisable to issue a general warning to all owners of horse-breeding stock, especially to owners of stallions which are liable to come in contact with western mares, urging them not to allow their stallions to serve range mares that have not been in Minnesota for more than one year.

Owners of mares should not patronise stallions that have come from Montana, North Dakota, or South Dakota within three years, or other stallions, unless their breeding history is well known. Owners of healthy breeding stock cannot afford to take chances. Infected stallions should be castrated and infected mares killed, regardless of value.

All horsemen who do not already have full information with regard to dourine should secure the free bulletin on the subject, recently published by the Agricultural Extension Division. It may be secured by addressing the Office of Publications, University Farm, St. Paul.—W. L. Boyd, Assistant Veterinarian, University Farm, St. Paul.

SHEARING AND DIPPING SHEEP.

The time to dip is soon after flock is shorn. The time to shear is between May 10 and June 1 in this climate. Sheep should not be shorn as early as April for shipment to market, unless they are fat sheep; then it is admissable to shear at any time in April, when there is a prospect of a few days of mild weather, sufficient to get the sheep into the market. But for the general flock care must be exercised, as a cold storm may come, and unless the sheep can be closely housed there is sure to be a big loss. Early shearing has some advantages. The flock, if weather is favorable, commences at once to improve. Lambs and suckling ewes do better when the dirt and filth that adheres to the wool of the ewe is clipped off. The flock, if ticky, soon loses the greatest portion of the ticks. The sheep rid themselves of many, while birds of several varieties busy themselves riding on the backs of the sheep picking the ticks off.

The general influences are for improvement in the flock as a result of early shearing. The habit of letting sheep run unshorn until very hot weather—the last of June or the first of July, as is frequently done by owners of small flocks, is very injurious to the sheep, and often results in loss of sheep and wool. The filth oftimes causes worms, being started from the green fly, an insect propagator that never misses an opportunity and is always on hand where there is a chance to start a crop of maggots to work. The dipping immediately after shearing is the most satisfactory and safe plan to pursue in getting rid of ticks. It is advisable to dip the second time about three weeks later, and always dip late in the autumn and before cold weather in order to get the flock free from any liability of ticyks in the winter, when it is too cold for dipping, and multitudes of ticks feed on your sheep until shearing, damaging the flock and costing increased feed to support these ticks.

The liability of scab is a matter that all flock owners must keep in mind. If there is a start of this disease it must not be neglected until cold weather. The time to treat the flock for scab and ticks is when the wool is off and before it has gained a new growth. It is cheaper at this time to treat it. It takes less material to dip successfully. It is performed at a time that seems to answer the convenience of the shepherd and best serve the flock interests in the matter of cure.

The lambs are liable to have the full crop of ticks soon after shearing, as the ticks change to some extent from the bare body of the newly shorn ewe to the lamb, where there is a good covering of fine, long fleece. It is a good plan to dip each year after shearing. It prevents any start of ticks or disease, and is a good, healthy bath for the animal. A small tank can be had which may be used on the farm. The galvanized iron tank is regarded the best and most durable. As to dips, the market is full of them. There cannot be much mistake made, as they are all meritorious, judging from the testimonials.—Twentieth Century Farmer.

HOW THEY FORECAST THE WEATHER.

One of our correspondents writes: Will you please tell me through the News Letter, in simple language, how the weather forecasts are made?

To this the shortest and simplest answer is: By telegraph. The weather forecaster does not look out of the window and guess. He is not weatherwise like the old salt who scents the approach of a storm without knowing how. To the signs by which the ordinary citizen decides whether to take his umbrella with him or leave it at home, he pays no attention. Give him his telegraph wires and he can make his predictions as accurately in a windowless cellar as on the top of New York's highest skyscraper.

The private individual sees the clouds settle on a near-by mountain or the rain sweep over a field a mile from his house and knows that the storm will be on him in a few minutes. With the aid of the telegraph the weather man sees the same storm when it is a thousand miles away, and not only this storm but every other one in the country. He knows in what direction and at what speed each is moving, and can thus calculate with reasonable accuracy the approximate time when it will reach any place in its route.

Twice a day, at 8 in the morning and 8 in the evening, reports are telegraphed to Washington from about 200 observers statjoned in as many different localities in the United States and Canada. In these reports the observers do not volunteer their personal opinions about what is going to happen. They confine themselves to a plain statement of the actual conditions at that particular moment, the pressure, or weight, of the atmosphere, the direction and velocity of the wind, and amount of rain since the last report, and so forth. From this information the Weather Map of the United States is made up, showing the conditions that prevail in every part of the country. Since there are two maps for each day it is obvious that by comparing them the forecaster can keep track of the course and progress of both storms and periods of clear weather. From that, the next step is to predict what sort of weather will prevail for a day or two in any given locality.

This map is the basis for all scientific weather forecasting. A glance at it will show that it is divided into "high pressure areas" and "low pressure areas." There are technical terms used to describe the region in which the weight or pressure of the atmosphere is great (high) or small (low). At sea level the barometer, which is used to measure this weight, will register 30 inches under normal conditions of the atmosphere. When it registers more than this, say 30.5 or 31, the pressure is "high;" when 29.5 or less, "low." In this way the height of a column of mercury in a barometer indicates the weight of the air just as, in a thermometer, it indicates the temperature.

Low pressures usually mean strong winds, rain, and rising temperature; high pressures, cool, clear weather. For a reason to be explained later, these "highs" and "lows," as they are called, travel in a general direction from west to east. The forecaster notes their progress on the may, perceives their speed and their route, and then predicts the time of their arrival at any specified point. If they traveled, like a ship steered by compass, an exact course to the east, and if they moved invariably at the same speed, then weather forecasting would be a simple sum in arithmetic, like calculating the time when a railroad train running 50 miles an hour will arrive at a station 500 miles away. But storms are not railroad trains. They travel in an easterly direction, but they do not travel due east. Their speed is liable to change, and they are affected by the presence of other storms, by mountain ranges, large bodies of water, and many other things which make weather prophesying the complicated science that it is. The skeleton of the science, however, is the progress of those "highs" and "lows" eastward across the country.

This progress is caused by the shape of the earth and the well-known fact that hot air rises. The tropical sun in the regions along the Equator heats great masses of air, which rise and drift towar. the North and South Poles. As the earth revolves from west to east these masses are carried along with it at the same speed. But, as is also well known, the Equator revolvs much faster than the poles, which are practically stationary, in much the same way as the rim of a wheel revolves faster than the hub. Therefore these masses of air, revolving at the same rate as the Equator, begin, as they approach the poles, to move much faster than the earth beneath them. There is thus a constant movement of the atmosphere from west to east, a movement which becomes more marked the nearer one gets to the poles.

This, of course, does not mean that the wind always blows from the west. The great current flows in that direction, but surface conditions cause innumerable eddies which are the winds we feel. Into a low pressure area, for instance, the air rushes from every direction. Thus, if the center of the disturbance is to the west of us, we will have an easterly wind as the air rushes toward this center; when the storm has reached and passed us on its easterly way we will have westerly winds. For this reason it is common to say that west winds mean clear weather.

The air that flows into the low-pressure area obviously must go somewhere. Since it is coming in from every point of the compass, the only available place is up. As it rises it cools and contracts. In the process the moisture it contains is condensed and we have rain. That is, we are likely to. It can not be stated too emphatically that there are many things to be considered which may make exceptions to the most fundamental rules.

In regard to temperature, everyone has noticed that rain in winter means warm weather, in summer cool weather. This arises from the fact that heat travels more easily through clear skies than through clouds and moisture. In the daytime heat reaches the earth from the sun; at night it leaves the earth to be absorbed in the atmosphere. In summer, therefore, when the days are longer than the nights, the earth is being heated for a greater part of the 24 hours than it is being cooled. In consequence the clearer the weather and the easier it is for heat to travel, the hotter it grows. In winter the reverse is true. The cooling time is longer than the heating, and the clearer it is the colder it grows.

Thus the pressure of the atmosphere is the key to the weather, affecting the three vital questions of rain, temperature, and wind. Many things may create an area of low pressure and many things may influence its career when once it has been created. But there are certain general rules based on the principles already outlined. The weather maps tell the forecaster the conditions of the last few days, the telegraph tells him of the conditions at the moment, and with this information he is able to predict the conditions for the immediate future from a standpoint very different to that of the amateur observer, however experienced, who can form an opinion only from the signs visible to his unaided eye. It may, in fact, be said that no accurate forecasts for more than a few hours in advance are possible unless the phophet is able to study a series of observations covering a wide range of country a few hours after they have been taken. For its weekly forecasts, indeed, the United States Weather Bureau has reports not only from this country but from abroad and at sea as well.

THE APPLICATION OF GREEN MANURES.

The benefit derived from incorporating green crops in soil as manure was noticed by the Romans.

The value of green manure is twofold. Green clover, when turned in the soil, adds nitrogen directly to the land. Later, when the clover is being decomposed, the carbohydrates which the decaying plant contains serves as a source of energy for the class of soil bacteria that are able to gather free nitrogen, independent of a host plant, from the air into their cells in a form that will be later used by growing plants. Owing to the ease and quickness in which these green crops may be decomposed, the stimulation of the independent free nitrogen fixing bactearia is brought about much sooner than will dry material that is coarse and difficult to decompose.

If during a dry spell, the green manure is added in very great quantities, excessive evaporation may result. Experiments have shown that the acid produced in the soil from this kind of manuring is not great enough to prevent nitrification.

The farmer must use judgment in selecting the most economical crop for this purpose in his particular section. The one giving a luxuriant growth of leaves and costing but little to grow is desirable. A non-leguminous plant is as valuable in stimulating the free nitrogen fixing organism, pound for pound, as the plants of the leguminous family. The fact that a plant is not from the legume family does not keep it from being of value as manure. This form of manuring bids fair to receive a great deal more of attention in the near future.—Henry Fulmer, Assistant in Bacteriology.

CANADA FIELD PEAS.

The Canada Field Pea is a crop that deserves more attention on many farms in Minnesota. A 10-year average yield of 21 bushels of seed per acre has been secured on University Farm. The weight per bushel is 60 pounds. Mixed in the proper proportions with other feeds, ground peas make a good feed for live stock. They are higher in protein content than the grains commonly grown on the farm and can be used in some mixed feeds to take the place of bran. For the production of an annual hay crop, peas and oats mixed at the rate of two bushels of peas and one bushel of oats and drilled early in spring give good results. From one and a half to three and a half tons of hay can be secured. Oat and pea hay can be fed to advantage to all classes of farm animals. Oats and peas drilled early in spring at the same rate as recommended for hay, make an excellent hog pasture crop, ready for use about July 1. Twenty bushels of white Canadian field peas produced in 1913 are on hand at University Farm. They can be procured for use as seed at $1.50 per bushel.

SECONDARY CAUS. 3 OF DISEASE.

Aside from germs there are secondary causes, or predisposing or contributing factors, which simply make it easier for disease germs to get a foothold in a living body, and produce their own disease there. Contributing causes lower the vitality or natural resistance of a person or an animal, and render that individual or animal less able to fight off diseases when exposed to them. Secondary causes or predisposing factors that may be mentioned are improper food; impure drinking water; uncleanliness; unsanitary surroundings, such as poor drainage, lack of sunshine, and insufficient ventilation; overwork, and exposure to extremes of heat and cold. By avoiding and correcting these, whenever and wherever possible, much disease will be avoided.

Bulletin 44, of the Farmers' Library, contains much useful information regarding the cause, prevention and cure of diseases of animals. Write to the Office of Publications, University Farm, St. Paul, and a copy will be mailed to you, free.

This beautiful Bracelet is all the rage. Adjustable to any size wrist, gold plated throughout. Engraved links. Set with fancy engraved beaded ornament with large ruby stone. Ring is set with 3 brilliants. Very handsome. Free for selling only 20 of our magnificent art and religious pictures at 10c each. We trust you with pictures until sold, and give an extra gift of 40 beautiful postcards for promptness. Send name today.
People's Supply Co., Dept. R.W. 716 Lucas Ave., St. Louis

From the Producer To the Consumer

FARMERS' EQUITY UNION.

J. H. Walker, president of Illinois State Federation of Labor, in reading the Equity Union Exchange after he had attended the second farm congress in Chicago, said:

"The Equity Union Exchange has the right ring in it. It sounds like they were on bed rock and knew what they are doing, and I wish them every success in the world, and I expect to do what little I can to make the movement a success."

CAUSE OF FAILURE.

There is first the disloyalty and lack of support on the part of the farmers.

The American farmer has been trained in the school of individualism. His independence is not a bad trait; in many ways it is his best trait. It nevertheless interferes greatly with the development of the co-operative spirit. Have you ever heard the little poem by Sam Walter Foss entitled "The Calf on the Lawn"? It is interesting in itself, and it illustrates especially well what I mean by the individualism of the farm folks. We give it below.

The Calf on the Lawn.
(By Sam Walter Foss.)

I'm goin' to hitch this 'ere young calf
out here in my front lawn;
He'll stay right here an' chaw the
grass 'till the hull thing is chawn;
He'll chaw thet corner off today, until
he's et it bare;
Ter-morrer I will move his stake, an'
he'll chaw over there.

Looks bad, yer say, to see a calf out
in a man's front yard,
An' blattin' like a barnyard, on this
stylish boolevard;
But thet air caff shall eat thet grass
until I get him fat,
An' if he feels like blattin, 'wy, I
reckon he will blat.

W'en I fust took my farm out here
this was a country road;
Across the way was parstchure lan',
where huckleberries growed;
My caff was then hitched in my yard
fer the hull town's inspection,
An' no darn enterprisin' dood cum
roun', to make objections.

W'en this road growed a villge street,
my caff was in the yard,
An' now the street it swells 'ith style
—a city boolevard!
But I will hitch this 'ere young caff
out here in my front lawn;
He'll stay right here an' chaw the
grass till the hull thing is chawn.

You say the way I carry on makes
the hull city laff;
Wall, let 'em laff—this 'ere's my lawn,
an' this 'ere is my caff,
An' things hez reached the purtiest
pass the worl' hez ever sawn,
Ef an ol' duff can't let his caff chaw
grass on his own lawn.

Wall, let 'em laff; this 'ere young
caff shall stay here anyhow,
An' if I hear 'em laff too hard, I'll trot
out the ol' cow;
I'll hitch 'em both to the same stake,
right here in my front lawn,
An' let 'em stay an' chaw the grass
till the hull things is chawn!

To say the least, we cannot hope for great support from such as these, until at least they see the light and are convinced that co-operation is safe and sane.

Many associations have failed because they have been promoted. The growth has not been a natural one. They have been built up from outside forces instead of from within.

The plan of building the local exchange at home and then connecting with other exchanges and then with factory, mine and mill and later with the ultimate consumer is a natural growth; that is to say the place to begin organization is with the individual farmer and let him first co-operate with his brother farmers at home before you need ever expect to see him co-operate in a national sense.

Organizers don't try to put on the roof before you lay the foundation.

Above is the thought given by Lloyd S. Tenny, United States Department of Agriculeure at farm congress, Chicago, Ill.

He also laid strict stress on the management of a co-operative association.

You can get a book giving all the talks made at the farm congress by writing Chas W. Holman, secretary, 1408 Steger Bldg., Chicago, Ill.

VIRGIL I. WIRT.

Virden, Ill.

CO-OPERATIVE CREAMERIES.

Practical Suggestions Concerning the Establishment of Cheese and Butter Factories by Farmers.

Practical and valuable suggestions on establishing farmers' co-operative creameries are given in the subjoined questions and answers by "Hoard's Dairyman." Milk producers will find much to interest them in the answers:

What is a reasonable price per share for stock?

This will depend upon the number of available stockholders and the amount of capital necessary to raise. Usually such stock is issued in $100 shares. The shares may be as low as $10 each in order that no one will be debarred. One method of organization which requires no money from individuals is for all of those who wish to take stock to sign a joint note and get the money at the bank.

A sinking fund is then created by taking a stipulated amount from each patron's deliveries which goes to pay off the loan. The stock should pay the usual rate of interest common in the community. As fast as the loan is paid, the interest should go to the stockholders in proportion to the amount of paid up stock he holds.

How much money is it necessary to have in the treasury to do business?

This will depend entirely upon the method of doing business. If the company pays cash for cream, it would be necessary to have a considerable surplus in the treasury, for often the total receipts for 1, 2 or even 4 weeks, may be on hand to pay for the cream as it was taken in.

If the plan is followed that is usual in Wisconsin and Minnesota, that of paying the patrons once a month, on the 15th or 20th of the succeeding month after the cream has been delivered, it is possible to operate a creamery with a very small amount of reserve in the treasury. For in this case the butter is made and sold, usually, before payday arrives, and the money is on hand to pay each patron and to pay the monthly bills of the creamery before it is needed. This is the usual procedure in a co-operative creamery.

How many cows are required to operate successfully?

A co-operative creamery with 400 good cows pledged can make a start. It is better to have more than this to be on the safe side; 600 or 800 cows would make the venture certain so far as the quantity is concerned.

What is a fair overrun?

Where cream is received, the overrun should be at least 20 per cent. With very careful manufacturing methods it may be even 22 per cent.

How much force is required outside of a buttermaker?

So far as the duties within the creamery are concerned, one man can handle all the product from 400 to 800 cows without difficulty. With a well arranged plant receiving cream, it might be possible for one man to handle considerably more product even than this.

It is a good plan to have another man employed who can devote a considerable portion of his time to visiting the patrons, giving them assistance in their dairy work, helping them to keep records of their stock and to get hold of good cows and bulls, and to figure up rations that would give best returns. A man doing duty of this kind, and helping in the creamery when it is necessary, would more than earn his salary because of the valuable assistance he could render to the creamery patrons.

What should be the buttermaker's salary?

This depends a good deal upon local conditions. A good first-class buttermaker in Minnesota or Wisconsin gets $75 to $125 per month, depending on the amount of responsibility which he must carry, and his reputation as a buttermaker. It is extremely poor policy for a small plant just beginning in business to be economical to the point of hiring a poor buttermaker, because a good one comes high.

A poor buttermaker is high-priced at any price, and many creameries have gone bankrupt because they followed a policy of that kind. If it is necessary to employ a helper in the creamery to do the scrubbing and the rough work, such a man can usually be employed for $30 to $40 per month.

The manager of a co-operative creamery is sometimes the buttermaker, although usually the directors elect a manager from their own number and make him secretary, and pay him $15 to $25 per month for his services. He is required to figure up the butterfat, write the checks, keep the books, and such other work of that character as the case may demand.

What is the expense of machinery where electric power is used?

The equipment for the creamery receiving cream from less than 1,000 cows should not cost more than $1,200 to $2,000. The cost of equipment will vary with the character of such equipment desired. The creamery may be equipped with a pasteurizing outfit, or it may not be so equipped.

The selections made in purchasing scales, weigh cans, vats, pails, testers and all such miscellaneous equipment may be much or little, according to the ideas of the manager. It does not pay to be extravagant in equipment, but at the same time nothing should be omitted which will be needed in making a first-class quality of butter.

Which would be best, to organize a creamery on the co-operative plan, or ship the cream to some central market?

If there are sufficient cows and sufficient skill is used in the business management, it is a rule without exception almost that a co-operative creamery can make a better return to its patrons than they can secure through any other method of operation. If a co-operative creamery is established in a community where the farmers have become accustomed to shipping their cream to out of town points, the promoters of the co-operative creamery should be very careful to secure the confidence and good will of every dairy farmer in the community who has cream to sell.

The farmers should come in with the understanding that they are building a new business in their community, and that the creamery business, in common with almost any other business, must go through a period of development before they can expect the greater returns from the line in which they are working. They must be loyal to the creamery, even to the point of being willing to lose a cent or two or even more per pound on their butterfat, until they have their business thoroughly established. If sufficient farmers in the community are not willing to subscribe to a proposition of this kind, the undertaking is hazardous.

What should be the reasonable cost of a new creamery, with up-to-date machinery?

A creamery building may cost any amount that the stockholders desire to invest. It may be the simplest, plainest, cheapest structure possible, or it may be elaborate with tiled walls and nickel trimmings, if the finances of the concern will permit such elaborate construction. A very good substantial building, equipped with the best machinery, ought to be built and equipped for $4,000 to $6,000. There are cases where even less than $4,000 would be necessary.

A co-operative organization planning to build and equip a new creamery should secure some expert buttermaker or creamery manager to assist them in making their estimates. Otherwise they will be working in the dark and may buy useless equipment or spend money on too elaborate a building for the good of the stockholders.

New Bargains

We Guarantee Them Even At These Low Prices

You'll quickly see that the values are most unusual,—that our prices are wonderfully low for such good, dependable merchandise. You must share in these money-saving opportunities and you must send for the "Standard" Summer Bulletin. It's brimful of hundreds of equally splendid bargains; and it's the latest issue of the famous

"Standard" Bargain Bulletins
"Issued Every Two Months"

Like all the others, it contains the very latest and most charming fashions. This "Fashion" and "Bargain" book will be sent you FREE. Cut and mail coupon (below) or send postal NOW.

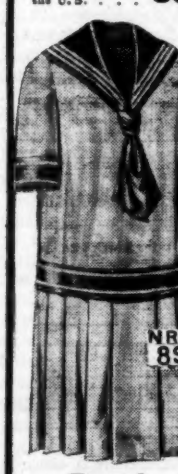
2N395—Tam-o'-Shanter hat of tan Tuscan straw. Full crown, with pink or blue satin ribbon and bow. The brim is trimmed with roses and foliage. For girls 8 to 14 yrs. Postpaid in the U. S. 95c

Little Boys' Dutch Suit 69c

JT69—Cute little Dutch suit for boys 3 to 8 years. Of very serviceable Linene in comfortable, loose cut. Fastens with large pearl buttons. In white with blue pants or blue with white pants; also in all blue. Regular $1.00 value. Postpaid in the U. S. . . . 69c

Little Girls' Wash Dress 39c

JR39—Here is a pretty little Percale dress that will stand lots of wear and many launderings. Comes in blue or pink checked material with matched solid color bandings and trimmings. Very good value. Sizes 2 to 6 years. Postpaid in the U.S. 39c



NR89 89¢

2-Piece "Middy" Dress 89c

NR89—A splendidly made 2-piece "Middy" dress of washable Linen. Blouse cut liberally long; trimmed with sailor collar, long tie, cuffs and turned-up "Oxford" bottom of contrasting Linon. Comes in white with navy blue trimming, navy blue with white, or tan with red. (6 to 14 years.) Postpaid in the U. S. 89c

Boys' 3-Piece Outfit 79c

2N779—Here's a practical, sensible outfit for boys. Worth fully $1.25, but offered you, postpaid, for only 79c. Consists of 2 serviceable, well-made shirt waists, —one of blue Percale and one of blue Chambray; also a pair of dark wool-mixed Cheviot knickerbocker pants that look well and wear splendidly. An outfit every boy needs, and at a bargain price. All 3 Pieces, Postpaid In the U. S. 79c

Perfect Brassieres 2 for 25c

27025—Correctly modelled, durable brassieres, prettily embroidery-and-lace trimmed. Sizes 32 to 46 Bust. An exceptional value. Be sure to share in it at once. Our price, postpaid in the U. S.,

2 for 25c

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FREE Bulletin Coupon

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Gentlemen: Please send me FREE, the "Standard" Bargain Bulletins beginning with the New Summer Bulletin.

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CO-OPERATIVE GRAIN MARKETING IN CANADA.

The Grain Growers' Grain Company of Canada is undoubtedly the largest farmers' marketing organization on the American continent, and represents one of the most important developments in co-operative marketing the world over. This company was organized by the farmers of Saskatchewan and Manitoba in 1906, and established a selling agency in Winnipeg, where it became a member of the organized grain exchange.

The growth of the company has been phenomenal. During the first year it marketed 2,340,000 bushels of grain; in 1910 it marketed 16,333,000 bushels; and in 1913, almost 30,000,000 bushels. It has a subscribed capital of $810,000, of which $645,000 has been paid in. There are over 14,000 stockholders, all of whom are farmers. The company pays 10 per cent dividends on stock, and places surplus profits in a reserve, which now amounts to nearly $200,000.

In addition to the selling of grain in the Winnipeg market, the Grain Growers' Grain Company now operates under lease, 170 country elevators owned by the Manitoba government, and two of the best terminal elevators of the Canadian Pacific Railroad at Fort William on Lake Superior. The company has also purchased a third elevator at Fort William, which is a well-equipped cleaning house with $45,000 worth of machinery. Late in 1913 it purchased a small elevator in Vancouver, B. C.

But this is not all. The Grain Grower's Grain Company operates under lease a small flour mill, and distributes the product among local associations of grain growers in carload lots, saving them from 30 to 60 cents per half-barrel sack, distributes coal in carload lots among farmers, saving them from two to three dollars a ton, and brings apples in carload lots direct from the co-operative fruit associations of Ontario to the grain growers of Western Canada.

The company has also purchased a vast timber tract in Western Canada, where it expects to erect saw mills, with a view of distributing lumber in carload lots. Not content with these various activities this farmers' company owns a printing establishment in Winnipeg and publishes its own paper, the Grain Growers' Guide, one of the leading farm papers of the Dominion.

To carry on this vast business the Grain Growers' Grain Company has offices in Winnipeg, Fort William, Calgary and Vancouver. It has 350 employees during the busy part of the year. The company is still growing and has unlimited ambitions for the future.—L. D. H. Weld, Agricultural Economist, University Farm, St. Paul.

MUST GET ON GOLDEN RULE PRINCIPLES

Every farmers' union must get on to the right foundation. A mere profession of Golden Rule principles will not suffice. The people of each community must be educated and persuaded to FOLLOW these principles. The Union which does not everlastingly carry on this campaign of education and persuasion will not grow in favor with the people. It deserves defeat and is sure to get it. The Equity cannot make debts, but every dollar we get is used to educate and persuade men and women to be Golden Rule co-operators. The school houses and churches are being opened to us more and more each year, and preachers and teachers are joining us and helping in the campaign of Education. The Equity Union is on the firing line for True-Blue Golden Rule co-operation.—Equity U. Exchange.

SOLVING THE MARKETING PROBLEM.

(L. C. Hill, Gulf, Colorado & Santa Fe Railroad, Houston, Texas.)

No one would care or worry about the advances that have occurred in the cost to the consumer (if the farmer was getting his due share) of food products were only the rich consumer to be considered, because they eat, no matter what the cost, but the system of retailing has grown so very expensive that the laboring man and the low salaried clerk no longer buy proper food with which to feed his family. As a consequence, millions are existing today on half rations of unwholesome food. This is not only bad for the consumer, but it curtails the market for the producer. No one except the few middle men profit by it.

Mr. Hill says the retail man educates the clerk in the retail business and then the wholesale man sets the clerk in business for himself and so we have more and more retail men and we have so many that a small profit for each means a large profit between producer and consumer.

BALDWIN CREAMERY.

Editor Rural World:—The business men organized the Baldwin creamery in St. Croix county, and after the creamery failed the farmers took over the creamery on pure co-operative basis. Last year this creamery did a business of $259,000.

This shows what co-operation means. It means co-operation.

Wisconsin is perhaps ahead of all states in co-operation in the true sense of the word because the state is composed of so many foreigners who know how.

Wisconsin has the educated Britishers trying to be as thrifty as the Scotchman; as shrewd as the Welshman and as energetic as the Irishman. Wisconsin has boys from the co-operative countries of Denmark, Norway, Sweden and Germany—all of Europe in fact.

Wisconsin is the state where you find farmers belonging to two farm unions instead of none.

The independent, individual American must learn from Wisconsin.

Wisconsin "will show" Missouri.

VIRGIL WIRT.

Virden, Ill.

THE EQUITY UNION CREED.

We believe in small farms and thorough cultivation.

We believe that soil loves to eat, as well as its owner, and ought, therefore, to be liberally fed.

We believe in large crops which leave the land better than they found it—making the farmer and the farm both glad at once.

We believe in going to the bottom of things, and, therefore, in deep plowing and enough of it. All the better with a subsoil plow.

We believe that every farm should own a good farmer.

FARMERS EQUITY UNION COAL

Blackbrier—Highgrade

Cantine—Semi-Highgrade

From our Illinois mines—Now used by many branches of the Farmers' Equity Union in the different States.

Reference: Mr. C. O. Drayton, National President Farmers' Equity Union. For prices, freight rates and any desired information, write to us.

LUMAGHI COAL COMPANY

606 Equitable Building, St. Louis, Mo.

SHIPMENTS ANYWHERE.

We believe that the best fertilizer for any soil is a spirit of industry enterprise and intelligence. Without this, lime and gypsum, bones, and green manure will be of little use.

We believe in good fences, good barns, good farmhouses, good stock, good orchards, and children enough to gather the fruit.

We believe in a clean kitchen, a neat wife in it, a clean cupboard, a clean dairy and a clean conscience.

We believe in a farmers' union that unites.

We believe in co-operation that co-operates for all of the people.

We believe in protection of the farmer as wealth-makers against the wealth-takers.

We believe that God helps those who help themselves.

We believe that economic freedom is only possible to an intelligent, moral, fraternal people.

We believe that the chief object of every industrial union should be to promote intelligence, morality and fraternalism among its members, and make them golden-rule co-operaters.

We believe in the golden rule, and not in rule by gold.

We believe in the Farmers' Equity Union because it embodies all of these sensible principles.

NATIONAL UNION.

FEEDING THE SUPPLY TO THE DEMAND.

Editor Rural World:—The last week of March fancy radishes were selling at Pittsburg by the barrel (15 dozen) at 10 cents per dozen bunches. At Pittsburg Diamond market, 12 blocks away, they were retailing the same radishes, two bunches for 5c, equal to 30c per dozen bunches.

Thus the dealers received 200 per cent of what the growers received for raising the radishes and paying the freight, icing charges, and commission.

Last summer a carload of cucumbers from North Carolina to jobbers and wholesalers in Philadelphia were selling at $2.50 per hamper. About 11 o'clock of the same morning the Panhandle railroad pulled into the yards and had eight cars of cucumbers on. Before 2 o'clock the same afternoon hamper cucumbers were selling in the jobbing or wholesale way at $1.25 per hamper.

This is a fall in price of one-half in a few hours.

It must be remembered while these eight cars were pulling into Philadelphia other large cities were getting no cucumbers to speak of at all.

This same thing happens year in and year out with perishable vegetables and fruit and so many markets are overstocked that fruit and vegetables rot in the car while other markets many times closer to the grower have no fruit or vegetables at all.

This kind of marketing must cease to be true, else the principle of conservation which demands that we increase the productivity of the soil is wide of the mark.

The producer of farm products and ultimate consumer must keep each other posted, also learn to co-operate.

VIRGIL WIRT.

Virden, Ill.

YOU NEED NO MONEY. We Trust You with Our Goods.

MAGNIFICENTLY DECORATED FULL-SIZE DINNER SET FREE

WE PREPAY FREIGHT On Premiums, Baking Powder, etc.

To gain a wider distribution for our *strictly pure*, high-grade groceries and family supplies, we now offer ABSOLUTELY FREE this handsome, full size, artistically embossed and magnificently

FLORAL DECORATED 112-PIECE DINNER SET

to every lady who distributes only a few pounds of Belle Baking Powder. With each pound Baking Powder, you may give Six Full Size Crystal White Glass Goblets, as per plan 663 (the goblets alone are worth as much as the price of the entire plan). Our Plans sell at sight. Many other Tea, Coffee and Grocery offers equally as cheap in price. If preferred, you can have choice of hundreds of other useful premiums, such as Furniture, Wearing Apparel, Linen Sets, Graniteware, Lamps, Rugs, Clocks, in fact anything you need, or we WILL PAY YOU A LARGE CASH COMMISSION. Best of all,

NO MONEY IS NEEDED. WE PREPAY FREIGHT

on everything to your nearest Railroad Station, allowing plenty of time to examine, deliver and collect before paying us. Write at once for our

FREE SAMPLE OUTFIT

and other things. If after receiving them, you decide not to get up an order, you may keep everything we send you FREE of charge for the trouble in answering this advertisement. WE ALSO GIVE ELEGANT PRESENTS FOR APPOINTING ONE OR MORE AGENTS TO WORK FOR US. NO LICENSE NEEDED. You advance no money. You have nothing to risk. Remember, the Special Premium and Sample Outfit are both absolutely free. WRITE TODAY.

The Greatest Offer Ever Made.

Special FREE Present

We give a 26-Pc. Silverine Knife, Fork and Spoon Set, or 7-Pc. High-Grade Granite Kitchen Set, or Elegant 10-Pc. Decorated Toilet Set, FREE of all cost or work of any kind. Simply send us your name & address and ask for this FREE PRESENT

THE PURE FOOD CO. 718 W. PEARL ST. CINCINNATI, - OHIO.

We can safely recommend The Pure Food Co. as being a thoroughly reliable and responsible firm.

I Want to Send You This Dinner Set

Our plan for distributing these dinner sets is very, very easy. You don't have to send us a penny of your money, and the little kindness we ask of you can be done during your spare time, when you are visiting your neighbors.

Here's What You Get.

The complete set of dishes contains 33 pieces.

6 Dinner Plates.
6 Saucers.
6 Cups.
6 Butter Dishes.
6 Cereal or Fruit Dishes.
1 Large Meat Platter.
1 Large Cake or Bre Plate.
1 Deep Vegetable Dish.

Famous Rose Decoration.

The beautiful, dainty American Beauty Rose decoration is the most popular design ever offered our readers. The bright red roses and the rich green foliage stand out clear and brilliant in the center of each piece, and to make the effect even more charming a rich gold border of gold is run around the edge of each dish, thus giving the complete set an individuality and attractiveness not found in other dinner sets.

Will Last For Years.

The dishes are made of pure white ware, and are for hard usage as well as beauty. They are stronger and bigger than most dishes and with ordinary care will last for years. They will not glaze or get streaky like most dishes and the rose and gold decoration is burnt into each piece and will not wear off.

You could not wish for a more complete set of dishes than this—33 pieces.

Made by a Famous Pottery.

Any woman will be proud of our famous American Beanty Rose set which is complete and beautiful. They are for every-day usage as well as for Sundays, and are the product of the famous Owen China Company, of Minerva, Ohio. We guarantee them to be genuine Owen Chinaware.

OUR EASY OFFER

The coupon starts everything. Sign it and we will send you a large illustration in colors, showing this beautiful Dinner Set with its handsome decorations of red, green and gold.

We will also send you a sample needle case, containing 100 different needles for every purpose, and 15 darners, bodkins and large needles—a total of 115 needles.

Our Dish Plan Is So Very Easy.

When you get this handsome needle case I want you to show it to 16 of your neighbors and friends and get them to hand you 25 cents each in connection with a special offer I will tell you about when I send you your needle case. When you tell them about our great offer they will thank you for the opportunity to help you. Each person who hands you 25 cents is entitled to a complete case of these famous needles. I will send the needle cases to you so you can hand them to your friends when you tell them about our offer. In addition to the needle case each person also gets a special subscription to our big farm paper.

You Will Be Surprised.

You will be surprised how very, very easy it is to get this set of dishes. No previous experience is necessary. When you get your dinner set you will be delighted and all your friends will envy you.

It is so very easy to get this set of dishes that many of our readers earn two, three and even more sets, and sell the extra sets to their friends at a big profit. Now, if you haven't already signed the coupon below, do so before you forget about it.

Sign the coupon—it starts everything.

41 EXTRA ARTICLES FREE

Our plan is full of SURPRISES and DELIGHTS for those of our friends who are willing to lend a helping hand at spare times.

The very first letter you get from us will surprise you before you open it. It will also delight you by telling all about the big 40 piece post card collection which we want to give you in addition to the dishes. We give you the 40 post cards for being prompt.

These beautiful post cards will not only please you—but they are so rare and attractive and printed in such a gorgeous array of colors that you will be delightfully surprised.

Another Present for Promptness.

And still, THAT is not all. One of the prettiest surprises of all is kept a secret until the day you get the dishes and find a pretty present that you know nothing about.

Isn't this a fascinating idea?

And what makes it more so is that we have something nice for everyone of your friends and neighbors, too. We'll tell you ALL about it as soon as we receive the coupon with your name on it.

The coupon starts the whole thing—Sign it before you forget it.

Mail This Coupon Today

Colman's Rural World,
St. Louis, Mo.

I want to get a 33 piece dinner set and the 41 extra gifts. Send me the sample needle case, picture of the dishes in color, and tell me all about your big offer.

Name .....

P. O. .....

R. F. D. .....State.....

FEEDING THE CALF.

Prof. A. B. Nystrom, dairy husbandman of the Washington State experiment Station, makes the following suggestions in regard to calf feeding:

We prefer to take the calf from the mother as soon as dropped, never allowing it to nurse once. By this method the cow soon forgets the calf, and the latter is much more easily taught to drink.

The mother's milk should be fed the first week, beginnng when the calf is 24 to 36 hours old. The milk must be fresh and warm, about 95 to 100 degrees Farenheit, and must always be fed from a clean pail, preferably a tin pail. A wooden pail is too hard to keep sweet and clean.

The second week whole milk from any cow may be fed, and the third week, if the calf is in good health and growing nicely, the change to skim milk may be begun. Do not make the mistake of feeding more skim milk simply because the cream is removed. The whole milk contains about as much protein as the calf can handle, and when skim milk is fed in large quantities the calf gets more than he can use, and as a consequence a sick calf is the result.

The change from whole milk to skim milk must be gradual; from one-half to one and one-half pounds a day, depending upon the size and vigor of calf. To an average calf, two weeks old, we would feed about 12 pounds a day of whole milk. The first day of the third week, or when it is desirable to begin the change, the daily feed would be 11 pounds of whole milk and one pound of skim milk; the second day, 10 pounds of whole milk and two pounds of skim milk, and so on until the complete change is made. It is just as essential to feed the skim milk warm as the whole milk, although when the calf gets larger and stronger, six to ten weeks old, a gradual change to cold milk may be made.

Allow the calf a clean, airy paddock or box stall in which to get exercise. Give him some well cured hay, such as timothy and clover, or timothy alone, as soon as he will eat it, which will be when he is from three to four weeks old. Alfalfa in small quantities may be fed, but with this roughage there is danger of the calf's eating more than he can properly digest.

Grain may be fed as soon as he will take it, and for this purpose a mixture of bran and crushed oats or crushed oats alone is recommended.

Calves should be fed in a stanchion so constructed as to prevent them from sucking each other's ears after they have drunk their milk. The feeding of grain by placing a little before them after every meal of milk will also discourage the desire to suck the ears of the calf in the next stanchion.

The secret of successful calf raising lies in keeping the calf's digestive organs in perfect shape. To do this avoid sudden changes, either in feeding or management. Feed warm milk from clean pails, but do not feed too much. Clean, sunny quarters, with exercise, and clean and wholesome food fed in proper amounts at the proper time will lessen the number of weak calves, and produce heifers which will develop into vigorous cows.

CHURNING TEMPERATURE.

The temperature at which cream should be churned should be determined by a trial churning of at about 54 degrees F. If the butter comes quickly and is soft, churn at a lower temeprature next time. If it comes firm and requires a long time to churn a higher temperature should be used next time.

The churing temperature will be effected by the following factors:

1st. The hardness or softness of the butter fat. Feed, breed, and individuality determine hardness or softness of butter fat.

2nd. Amount of ripening. Sour cream may be churned at a higher temperature than sweet cream.

3rd. Temperature cream was held at previous to churning. High temperature in ripening and holding requires lower temperature in churning. —G. E. Frevert, Dairyman, Idaho Experiment Station.